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POPULAR PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

FEBRUARY, 1956 ★ 35 CENTS

A SPECIAL ISSUE

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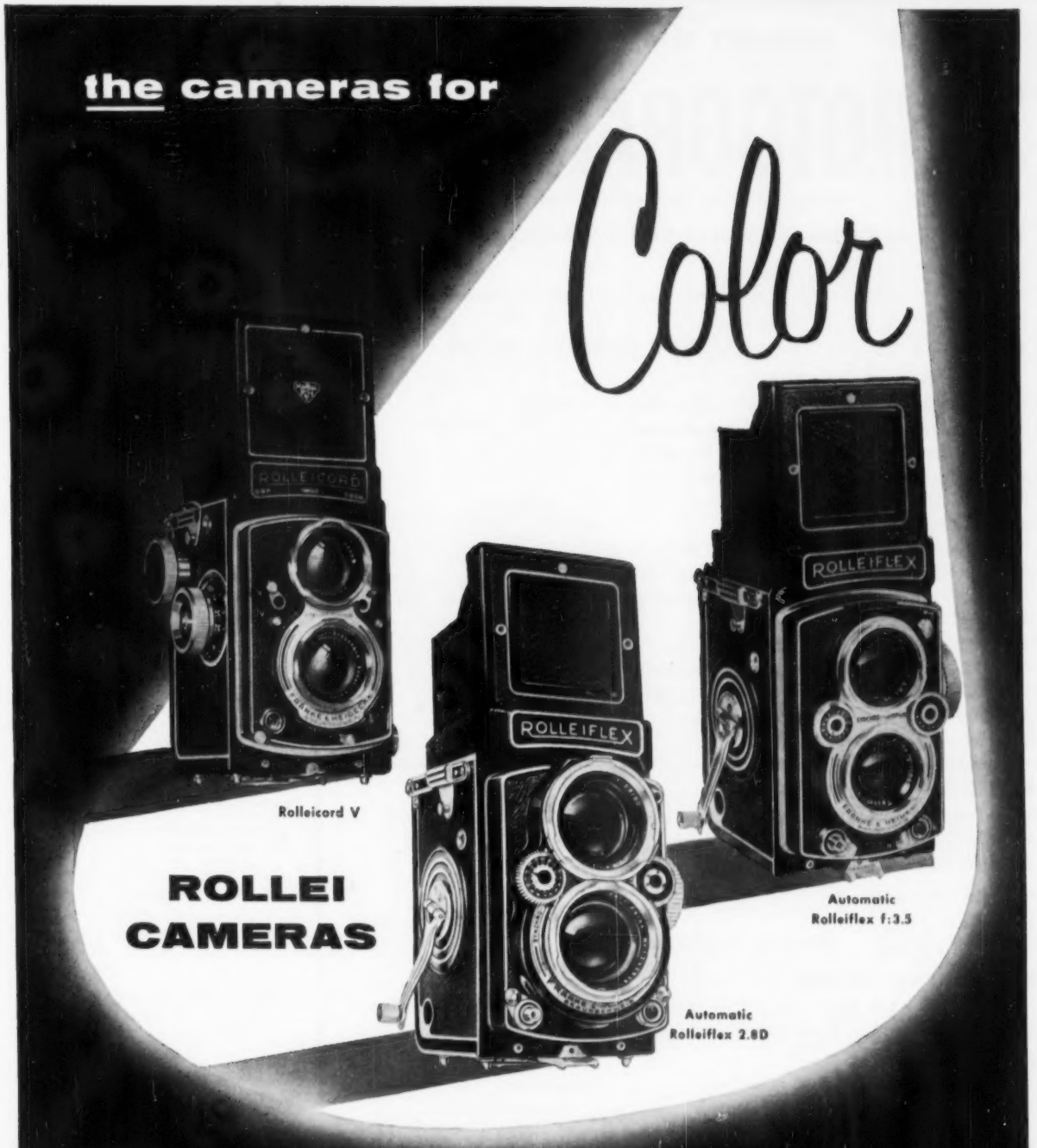

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FEBRUARY 1956

VOLUME 38 NUMBER 2

POPULAR PHOTOGRAPHY®

including CAMERA and AMERICAN PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

Springtime in the Sierras at 10,000 feet up means skiing to Stephanie Griffin, TV actress on *The Great Gildersleeve* show. This picture was taken in May by Mead-Maddick Studios, Los Angeles, with a 5x7 Graflex equipped with a 12-inch f/6.3 Ektar on Ektachrome. Exposure was a fifth of a second at f/9 in daylight. The picture was made at Mammoth, Calif., and was slightly overexposed for a high-key effect.

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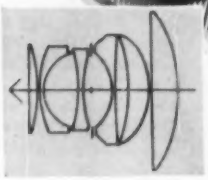

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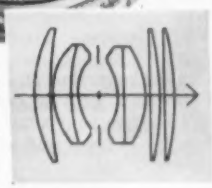

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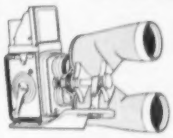

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letters to the editor

Contest Comment

You were a good sport to print my anonymous "sour grapes" letter in view of the fact that my forecast proved correct.

Sixty pictures were printed in the contest issue with the following results:

Wistful Children	6
Female Nudes	7
Cats	2
Dancers	7
Oriental Children	2

I predicted that oriental children would be the top winner in 1955. First prize was won by "Oriental Youths"—a very close miss. First prize in color was captured by "Wistful Teen Age Girl," another near hit.

JOHN MAASS
Philadelphia, Pa.

● *The near misses would indicate that Mr. Maass, like our judges, is also human. Tastes differ but as long as photographers are confined to pictures of things seen, some duplication is inevitable.*—ED.

Well, the pros have done it again. I am referring to the first five prizes in the contest.

How can amateurs without the equipment or experience compete with fellows like Katayama, Mardikes, Daettwyler, Schiffer, Rogers, and Rubin, who are press or magazine photographers or studio owners. Only Migliore is an amateur according to your article on the first five winners in black-and-white and in color.

GEORGE NAGEL
Yoakum, Tex.

● *A check of contest winners shows that of 55 winners in the color section, 30 were amateurs. In black-and-white, the score was 119 amateurs to 101 professionals. Of 11 top winners, nine are professional and two are amateur. The contest is kept an open event in order to get the best photos, regardless of who makes them.*—ED.

I would be interested in a resumé of the many factors which determined the final winners in your 1955 Contest, point by point, from the viewpoint of the judges. Further, I would enjoy an analysis of the winning shots from someone outside the POPULAR PHOTOGRAPHY family, regardless of his pet "cliché" or "school of thought." I'd like to see the "why" of these pictures pinned down to see if they have any substance. To what standard do they conform?

HOWARD CHILDRESS
Murfreesboro, Tenn.

This is an excellent idea. Meanwhile, for pointers on good pictures in general, see the rest of this issue.—ED.

To run an article with a collection of photos such as those in the George Silk article in the December issue must have been as confusing to many of your readers as it was to me. My point is that I thought these were the winning photos. They should have been.

In my humble opinion, your collection of prize-winning photos represents the biggest collection of junk ever published.

KIRK BRAUN
Milwaukee, Ore.

● *Perhaps if Silk's pictures had been entered in the contest, they would have been prize-winners. Differences of opinion not only make horse races, they make photo contests.*—ED.

The 1955 Contest Issue is, as usual, an excellent cross-sample of modern photography. Some of the pictures are pleasant, others are not; some are able to tell a story in a glance, others require time; some I like and others I think are terrible, but the collection has "life." It is a hard term to define but if you look at some of the European photo collections, full of the pre-war *gemütlichkeit*, you can see what I mean. Congratulations for a most stimulating issue.

ROBERT F. MEAGHER
New Orleans, La.

Pretty good contest issue this year. I think that both fifth-place winners are good, much better than the first-prize winner but I'll grant you your point of view. I enjoyed the magazine very much and look forward to each issue. One complaint: why can't you have better reproductions? Some of the pictures are good in spite of the muddy paper.

JOHN KOVACS
Topeka, Kan.

Neutral Density Filters

In your article on neutral density filters in the November 1955 issue, you state that the combined filter factor of more than one filter is the sum of the individual filter factors. I think this is an error. According to Henney and Dudley's *Handbook of Photography*, the transmission of several filters is the product of the individual transmissions so that the combined filter factor would be the product rather than the sum of the filter factors.

MORRIS NAHUM
Bronx, N. Y.

● *We slipped on that one. You are correct. Thanks to the other alert readers who also called this to our attention.*—ED.

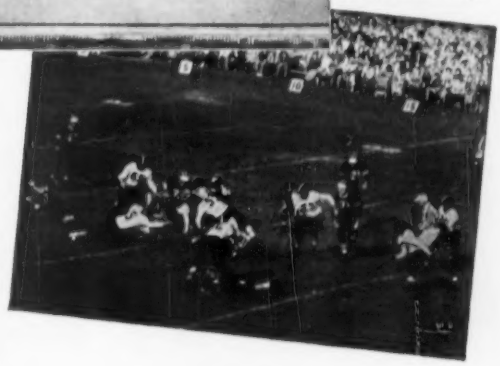
Available Light

In your October article by John Adam Knight on available light, he seems to be sore at somebody about something. If he wants to stay in the dark ages of photography, let him stay there.

In my opinion, available-light photography will be as common and as popular as sunlight snapshots in a year or two. Fast lenses are here and fine-grain, faster films are on the way.

H. W. MCNELLEY
Atlanta, Ga.

Atop stadium roof. Mason (Right) works his Exakta while other photographer uses a "Big Bertha" with 20 inch lens. Along with the operator of the Big camera a spotter is necessary to record the plays.



University of Conn.—University of Maine Game, taken with an Exakta from stadium press-box, 500th of a sec. at f:8. 135mm lens.

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Newspaper photographer Wesley L. Mason gets thrilling, close-up action-packed football shots the EASY way with his 35-mm Exakta. "He gets such amazing results that other photographers sit up and take notice."*

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*This is directly from an article by Arthur J. Kiely, Jr., Sports Writer for the Hartford Courant.

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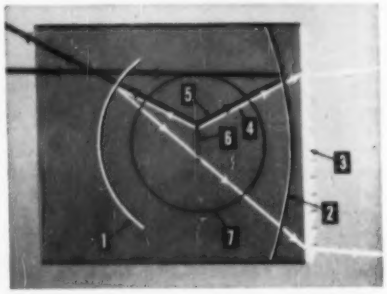
by Norman C. Lipton

A round-up of recent developments and significant trends

Rearranged Color Layers. There is now reason to believe that one or more Kodak monopack color materials will eventually appear with the green-sensitive (magenta-dyed) emulsion layer on top, the red-sensitive (cyan-dyed) layer immediately below it, and the blue-sensitive (yellow-dyed) layer on bottom, next to the film base. This arrangement is claimed to produce improved image sharpness by utilizing the darker color images more fully at the front of the film. It also eliminates the necessity of including a yellow filter layer between the uppermost blue-sensitive layer and the green- and red-sensitive layers below it—which is the case in the conventional monopack color material structure now in vogue. Basis for the foregoing prediction is the recent announcement by Dr. Bela Gaspar that the inventions of Gasparcolor's U.S. patents No. 2,344,084 and 2,312,543 have recently been licensed to the Eastman Kodak Company on a nonexclusive basis. Both patents are related to the color sensitivity of emulsion layers in a multilayer, multicolor photographic film. According to the October 1955 issue of the *Journal of the SMPTE* (page 589) where we picked up the note, the former patent describes the utilization of silver-chloride emulsions which are in the main insensitive to blue light, as the two upper layers of the monopack, with an inherently blue-sensitive silver-halide emulsion below. The two upper layers are subsequently sensitized respectively to green and red. The second patent deals with another method of obtaining the same type of improvement in color-image sharpness.

Heat Filtering. An ingenious application of interference-filter principles has enabled a team of researchers from the General Electric Co. lamp department and the Bausch and Lomb Optical Co. to produce an experimental photographic spotlight which, at a given illumination level, reduces the radiant heat in the light beam by 50 percent and decreases the lamp bulb temperatures by 100 C. Two heat-resistant interference film coatings were developed. One of these, applied to the back of the fresnel lens of the spotlight, transmits the visible radiations of the lamp and reflects a large portion of the infrared back into the housing. The second interference film coating, applied to the mirror behind the lamp, reflects the visible emission of the lamp (beaming it forward through the fresnel lens) and transmits the infrared to the rear of the open spotlight housing. It was found, in the course of experimentation, that by applying the first coating to a glass parabola placed between the lamp and fresnel lens instead of to the fresnel lens directly that the infrared radiations could be directed to the rear of the spotlight housing with much greater efficiency. The new spotlight and its principles were described in a paper entitled *Reduction of Temperatures on Motion-Picture and Television Sets Using Heat Control Coatings* by F. E. Carlson and G. T. Howard of G-E and A. F. Turner and H. H. Schroeder of Bausch and Lomb—at the 78th semi-annual convention of the SMPTE at Lake Placid, New York, last October. (Both a 750- and a 5,000-watt model were demonstrated.) The device was developed as a service to the industry and is being submitted to the Motion Picture Research Council for further evaluation. The principle is applicable to slide as well as motion-picture film projectors where excessive heat in the film gate is often a problem. . . . The complete paper has been scheduled for publication in an early issue of the *SMPTE Journal*.



Details of General Electric-Bausch & Lomb heat filtration system: visible light rays (4) and infrared radiation (5) emitted by filament (6) of spotlight bulb (7) travel forward to parabolic glass screen (2) which has I-R reflecting interference-filter coating on its concave surface. Visible rays pass through fresnel lens (3) to the photographic set, while I-R (heat) radiation passes back into lamp housing. Lamp reflector (1) is coated on concave surface with another interference film coating that reflects visible light rays and transmits direct and reflected infrared radiations through back of open lamp housing.

Reorganized "Leica Manual." A major change in the approach and organization of the most popular reference book in 35-mm photography took place last October with the publication of the Thirteenth Edition of Morgan & Lester's *Leica Manual & Data Book*. From the First Edition of the *Leica Manual* in August 1935 to the completely revised and reset Twelfth Edition, this standard volume has appeared in the form of a symposium with its various chapters on Leica equipment and the various phases of 35-mm photography contributed by a corps of outstanding experts in the respective fields. In each instance the publishers, Messrs. Willard D. Morgan and Henry M. Lester, had authored the greatest number of chapters. The new edition is different from its predecessors in that it is a completely integrated text book written and edited

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YOUR ELECTRONIC FLASH SHOULD NOT COST MORE THAN $54.95 and need more than 80c worth of batteries!

If you've decided to buy an electronic flash, then you've still got a problem. Which one?

You can pay anything from about $25 up to $2500. For $25 you'll get a unit with the flash power of about a ¼ of a midget flashbulb—and you'll be limited to indoor photography. It has no power supply of its own so you've always got to be on the end of a cord leading to the nearest electric outlet. For $2500 you can have a custom-built ¼-ton unit like the ones used in scientific research centres.

WHAT SHOULD I EXPECT TO PAY?

Almost all but professional photographers buy units for $100 and less. You don't get very much difference in the light output of any of the units in this price range. They all produce something roughly equivalent to the light of a "peanut" flash bulb (#5 or #25)—mostly slightly less than that. You can check that up by comparing the flash exposure guides of the electronic flash to the guide for the flashbulb.

This amount of light is more than enough for the range of photography of even most professionals who give their units far more rigorous work-outs than the amateurs. The electronic flash is a "softer" light with high carrying power. Slight extra film development is usually recommended since this adds some "snap" to the photo—as well as helping to make the light output of the flash look stronger than it really is.

The FR Electronic Flash is somewhat brighter than many of the others. FR's Kodachrome guide number is 40-50, depending on the size of the room and the condition of the batteries. Other units have guide numbers from 25 to 40. Some units have so little light that they express their guide numbers in terms of the fast color films rather than the slow Kodachrome.

WHAT ABOUT THE POWER SUPPLY?

There are essentially only three ways to power these units. 1. With big batteries that contain enough current for 1000 or more shots. These batteries cost from $8 *each* on up. 2. With standard photoflash batteries. These provide 150-300 shots depending on battery freshness, frequency of use and time between flashes. They cost only 80c per set of four and weigh only ounces. 3. By drawing from AC house current.

Most units offer only one of the three sources of power. Some units can be used with any of the three—but they sell the components at $20 and more each, over and above the cost of the basic equipment. FR offers the two low-cost sources of power in one unit—photoflash batteries and AC—at NO EXTRA COST.

WHAT OTHER FACTORS ARE THERE TO CONSIDER?

Well, there's *weight*, for instance. If you're planning to hold the camera for hours at a game or a wedding or a party, a heavy unit will actually wear you out, give you "photographer's temper." The FR Electronic Flash is one of the lightest; it weighs only 2½-pounds and the little batteries add only ounces more. Most other units weigh nearly 4-pounds, some even 5-pounds.

A Minolta camera action photo by FR Electronic Flash.

There's *recycle time*. That's the time it takes to recharge the unit between shots. Press photographers say this should be under 20 seconds since it takes that long to change film, wind the shutter, re-focus and line up the next shot anyway. When you're on AC, recharging takes less than 5 seconds on almost any unit. When you're on batteries, any batteries, it depends on their condition. Fresh batteries in the FR unit permit shots as often as every 15 seconds.

You can tell that the unit is ready to fire when the FR "ready light" goes on. Some units don't have that little signal light and you're never really sure when you shoot if you've gotten a "half-charge" *blink* or a "full-charge" *flash*. To your eye they look alike. But the spoiled pictures made by the "half-charge" will show up on the film as under-exposures, too thin to print.

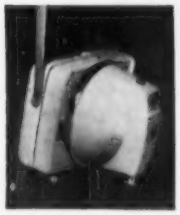
There's the *design feature*. Some units are just heavy boxes hung like rucksacks on the cameraman's shoulder. Others are Buck Roger-ish contraptions that are too clumsy to be taken off the camera for improved lighting techniques during shooting. The FR unit head is so light that 35mm photographers like it mounted right into the T-slot on the camera top. Or it is easily fitted to any camera's side or bottom by the bracket included in the purchase price of the FR Electronic Flash.

The FR unit has the exclusive clip-together feature so the flash head is nestled protectively against the battery case for carrying and storage. The case itself has been "human engineered" to fit comfortably at the photographer's side when he is shooting.

There's the *price*. The FR unit sells *complete*—for $54.95. Most others advertised at that price do not include the battery which costs about $20 more.

WHAT ELSE SHOULD I KNOW?

Your local dealer sells the FR Electronic Flash. Within the past year, for the reasons given, it has become America's most popular unit. Many stores sell more FR Electronic Flash units than all other makes combined.



Your dealer will gladly fit an FR to your camera and he'll give you a 10-day free trial so you can try it out at home or on the job. If he is temporarily out of stock (as he well may be after his Christmas season), don't be talked into a substitute. He can have an FR for you in a few days no matter where you live.

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by the two publishers and a pair of expert associate editors, John S. Carroll and Dorothy S. Gelatt. Contributions have been limited to three short pieces in the chapter on Copying and Close-ups, a complete chapter on Medical Photography, and two major sections under the heading Pictures for Publication.

The new *Leica Manual* systematically explores on a chapter-by-chapter basis, available Leica cameras, lenses, and accessory shooting and processing equipment, and then goes on to discuss the methods by which they can be used to make excellent pictures in black-and-white and color. It is illustrated with a profusion of pertinent photographs, charts, diagrams, and formulas, and it continues to qualify as a handbook for all 35-mm workers whatever the make of their particular equipment. Its usefulness to the owner of discontinued Leica equipment has been enhanced by an illustrated appendix covering all Leica models, past and present, as well as a section on all the old Leica lenses no longer being manufactured. The 456-page volume, published jointly by Morgan & Lester, New York, and Fountain Press, London, is priced at $6.00.

Tinier Batteries. Further miniaturization of high-voltage dry batteries used in (B-C) photoflash and speedlight service can be expected in the light of a new high-power wafer-cell design recently developed by the Burgess Battery Company of Freeport, Illinois. A single complete wafer cell is so small that it barely covers an adult's finger-tip—a 22½-volt battery consisting of 13 such cells stacked end on end, wrapped in transparent Mylar polyester film and capped in a leak-proof tube of drawn aluminum, is only two inches long. Burgess has recently developed a new 300-volt heavy-duty dry battery consisting of multiple stacks of wafer cells which occupies less than 20 cubic inches of space. Three years of research and engineering went into the development of

Thirteen wafer cells smaller than finger tip stacked in two-inch leakproof aluminum tube comprise new 22½-volt miniature dry battery announced by Burgess.

the new cell, according to Burgess, and four patents protect its exclusive features. A 30 percent increase in battery power and life is claimed in addition to the miniaturization factor. The new wafer cell consists of a sandwich of artificial manganese dioxide mix between tiny disks of flat zinc and conductive car-

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bon which serve as the electrodes, all wrapped and heat-sealed in an airtight pliofilm envelope. A new conductive silver wax dabbed on the two electrodes of each cell serves as an intercell connection when the cells are stacked in a column. Electrical contact is maintained by keeping the silver wax in pressure contact after it has been molded to the intercell configuration. The new cell design eliminates traditional hand operations so that automation in manufacture can greatly increase cell-production levels.

High-Speed Ciné Light Source. The characteristics and performance of a relatively new incandescent light source for high-speed motion picture photography, G-E's 300-watt PAR 56/SP, is described in the October 1955 issue of the *Journal of the SMPTE*. They are the essence of a paper by J. M. Novajosky of the Allison Div., General Motors Corp., Indianapolis, Ind., entitled *A Rugged and Efficient High-Speed Photographic Illumination System*. Although the ability to withstand high-frequency vibration, buffeting in high-velocity air streams, extremes of temperature, and generally rough handling are special prerequisites of the Allison Division's photographic operation, other qualities of the new G-E lamp which led to its selection over other high-intensity sources will be of interest to all workers in the field of high-speed cinematography. Briefly, the 300 PAR 56/SP lamp is patterned after the typical automobile headlight. Its life cycle, peak commercial efficiency in lumens-per-watt, field coverage, and current consumption compare very favorably with the characteristics of other over-volted G-E lamps against which it was tested before being installed as a standard at the Allison plant. Specific test data as well as photographic characteristics and installation details relating to the lamp are incorporated in the published paper.

Japan Camera Center. An unprecedented example of industrial co-operation among competitors in the camera-manufacturing field was unveiled to the American public last November 30 with the announcement of a Japan Camera Center scheduled to open at 329 Fifth Avenue, New York City, in mid-December. The new establishment will provide information as well as service facilities for all Japanese camera products, including those which are not presently being imported and distributed here through established trade channels. Technicians representing the various manufacturers will be in constant attendance at the Center to inspect, repair, and give advice about Japanese cameras now in the hands of American consumers. Repairs will be made with the aid of a stock of replacement parts and service tools provided by the respective manufacturers. Additionally, an exhibition hall will be maintained on the premises, at which the latest developments in Japanese photographic and optical equipment will be continually displayed. A staff of seven will administer the new Center under the direction of Kinji Moriyama, a member of the Japanese Diet, who has been on an extended leave from his legislative responsibilities from August 1955 to January 1956 for the purpose of organizing the installation.

Announcement of the Japan Camera Center was made at the opening of the Second Annual Japan Photo Show on the nearby premises of the Japan Trade Center at 393 Fifth Avenue. This two-week event featured an exhibition of some 300 prize-winning photographs made by members of several thousand camera clubs in Japan, as well as a trade show in which the products of 30 Japanese manufacturers were represented.

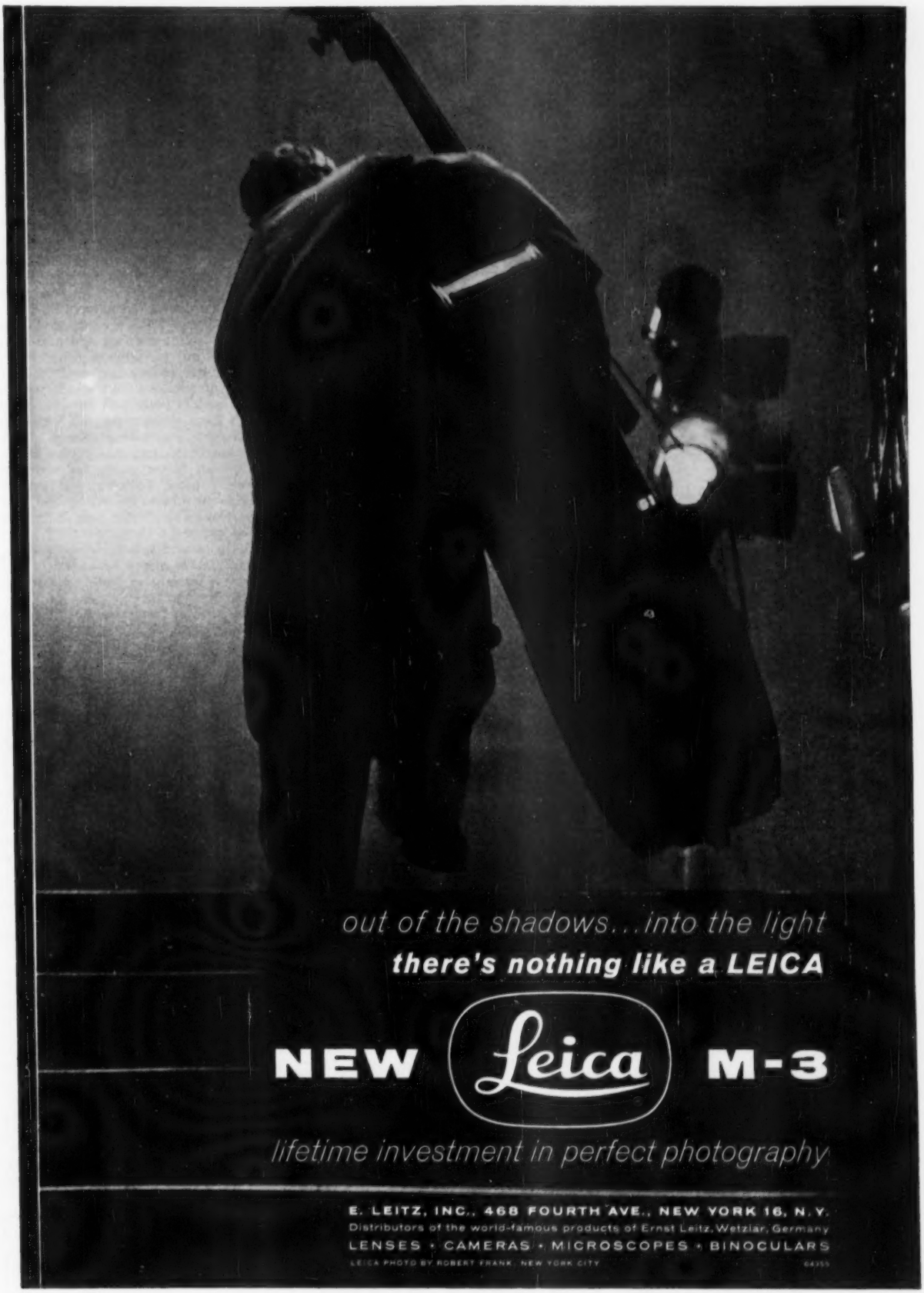
Statistically, the phenomenal growth of the Japanese camera industry is significant, for it is one of the fastest growing in Japan. The 1952 camera production figure which amounted to 402,769 units was more than doubled in 1954 when 982,560 cameras were manufactured. During the first six months of 1955, the rate was 100,000 per month—roughly 30 percent of the amount being exported to the United States, according to a news release issued by the new Japan Camera Center.

Odds & Ends. What might be considered a complete definition of the term "industrial photography" is incorporated in the recently issued Kodak Industrial Data Book *How to Organize and Operate Photographic Service Departments*. The 50-cent booklet is aimed principally at the executive contemplating the use of photography in a business organization, yet it should be of considerable value to all individuals working in or on the perimeter of this new booming field, for it is loaded with practical information.

. . . An ingenious low pH (highly acidic) developer formula which has practically no developer action at room temperature but produces a relatively fog-free image at 80 C within 15 to 20 seconds is outlined in German patent No. 928,753, granted 5/12/55 to J. Rzymkowski. An example of such a formula listed in the patent incorporates 20 grams, sodium sulfite; 5 grams, hydroquinone; 2 grams, metol; 16 grams, boric acid, and .15 gram nitrobenzimidazole in a 1-liter water solution.

. . . Do-it-yourself fans who feel like putting together a home-made photographic exposure meter can avail themselves of an inexpensive "Sun Battery & Photoelectric Cell" which weighs but 1 ounce, offered by Johnson Smith & Co., 6615 E. Jefferson Avenue, Detroit 7, Michigan—$2.50 postpaid.

. . . A quick method for distinguishing safety-type base from nitrate film base was recently proposed by the Ferrania film manufacturing company in Italy: Drop the samples into trichloroethylene; nitrate film will sink while the safety film, having a lower specific gravity, will float near the surface. . . . Gevaert of Antwerp, Belgium, has patented an even simpler method of making the distinction: They incorporate in safety film a compound that fluoresces in ultraviolet light (Belgian patent No. 516,814-5, granted 1/31/53). —▶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color clinic

by David B. Eisendrath, Jr.

A famous technician solves your problems

Until a short time ago I had a flash camera and got perfect results using Kodachrome film for Daylight, 25B bulbs, and a 5-inch satin reflector. Now I have purchased a new camera that has a polished reflector and I am unable to figure out a new guide for exposure and all of my pictures are washed out. How do you go about setting up a new code of flash factors for your own use? —M. J. B., Muskegon, Michigan.

We've had several questions along this line, so will answer this specific question and try to cover all the problems involved. What has set this fellow (or gal) wrong is probably the switch from the satin to the polished reflector, the latter giving anywhere from half a stop to a stop and a half more effective light than the old reflector. Now, the conditions that affect exposure on flash most—other than reflector, synchronizing, and shutter settings—is subject matter and condition of the scene. If a subject has light clothes, you will need less exposure; if a subject is dark, you will need more exposure. If a room is small and has light walls, you'll have to stop down some; and if there are dark walls, no walls at all, or if they're far away, you'll need to open up the lens more.

Now, before we take these factors into consideration, we have to say more than *what?* And it's *average* conditions that determine our *average* exposure. Here's how I suggest making your own guide.

Get a model (friend, child, etc.) and be sure that the clothes worn are of average brightness—neither a white nor light-colored garment, nor a dark-blue serge. Probably a light-gray or tan or a pastel shade is best. Plan to conduct your experiments in a room of average size—a living room about 15x15 feet with a nine- or ten-foot ceiling, perhaps, with medium-tone walls—not a deep-green, or bright-white. For these are all average or in the middle situation. Seat your subject on a chair a few feet away from the wall, put your camera on a table or tripod, and measure the distance from the flashbulb to the subject. Let's use 8 feet as a convenient and typical figure. Now let's take a trial guide number of 45; this means that at 8 feet, your exposure will be 45 ÷ 8, or *f*/5.6. Now make a series of pictures with subject and camera in the same position, and shoot one at *f*/4.5, one at *f*/5.6, one at *f*/6.3, and perhaps one at *f*/8—all at the same shutter speed, and with the camera and flash in the same position and at the same distance from the subject. Keep accurate records of this, and when the films are processed you can see which exposure gave you the kind of transparency you like. If the one at *f*/6.3 is best, you have now established a new guide number for your equipment under average conditions at 1/25 of a second—the guide number being 8 (feet) times (*f*) 6.3, which is about 50. This means you can shoot at ten feet at *f*/5., or 5 feet at *f*/10. or 15 feet at *f*/3.5, etc.

You must remember that light walls, small rooms, and light subject colors will require that you stop down more and that darker subjects and surroundings will make it necessary for you to open up more. I'd suggest that you take your new guide number and any others you work out for other size bulbs or at other shutter speeds and write them on a piece of adhesive tape which you put on the back of your flash reflector so you always have them with you. Sure, such a test costs you a few frames of film and some bulbs, but once you've worked out a flash factor guide for your own camera, shutter, reflector, and personal taste, you'll seldom go wrong, and you'll save a lot in shots that you don't waste in the future.

●

Should color slides be bound in glass or not? What is your feeling about this? —M.S., Warren, Pa.

This kind of question has been answered in these columns before, but there are certain questions that keep cropping up several times every month, so after a respectful interval, I guess we'd better answer all of these at once again.

How you handle or store your transparencies depends a good deal on what you do with them and how you use them. If you are interested in competing in slide shows, or color contests, you simply *have* to mount them in approved standard glass binders. If you have color slides which are irreplaceable and very valuable, for goodness sake, protect them against dirt and scratching. If you lecture or use any of your pictures for business purposes where they have real monetary value protect them in every way you can. Glass protects them from moisture, fingerprints, scratches, bending, and other dangers and holds them flat for sharp projection.

On the other hand, glass-mounted slides are heavier than unmounted ones, and take more space to store. Glass is fragile and subject to breakage if not properly cared for. Mounting slides in glass takes a good deal of time and care. I feel that it all boils down to what your own needs and interests are. How precious are the slides to you? What kind of viewers do you use? Some projectors really only perform well with properly mounted, bound slides. This is all very *iffy*, I know, but you make the pictures and you must do with them what you want. But consider some of the pros and cons, first.

Questions of general interest to the color photographer will be answered in this department. However, individual replies can not be given for questions that are not used.—Ed.

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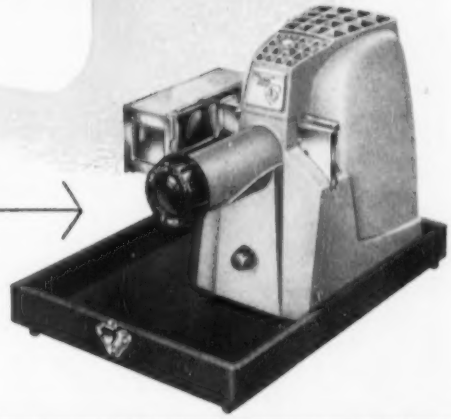

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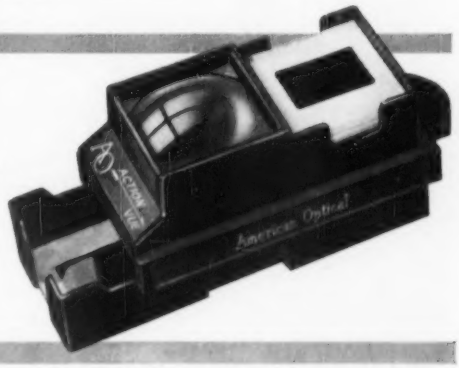

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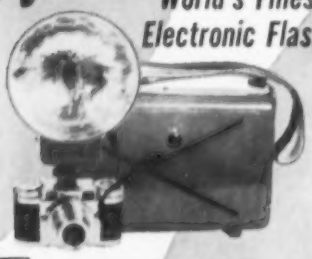

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stereo today

by Robert L. McIntyre

Hold Steady for Flash

Stereo fans are bemoaning the change in Kodachrome film for artificial light, in which Type A (balanced for photoflood illumination) is being replaced by Type F (balanced for clear, wire-filled flash lamps). The combination of Type A film and gas-filled SM or SF bulbs happened to be an ideal one for stereo. It produced good color, with a slightly warm tone most people liked. The quick-burning characteristics of the bulbs made them especially desirable for most stereo cameras, built to synchronize only at 1/25-second shutter speed. Using SM lamps with shutter at 1/25, you really got the same action-stopping effect you could expect with a 1/200-second shutter speed in daylight. This helped catch action subjects and aided in avoiding blur due to camera movement.

The new film requires regular, wire-filled bulbs which take longer to burn. Their flash is about the equivalent of 1/50-second shutter speed as far as stopping action and camera movement is concerned. That's four times as long as 1/200. If you are accustomed to using SM or SF lamps, be particularly careful to hold your camera steady when using the new film and the bulbs it calls for. Your exposures will be longer, with more danger of unwanted blur.

Above the Sun

You can aim the stereo camera upward or downward, but you can't tilt it to one side or the other without getting into trouble. That's one of the basic rules of stereo. It holds true practically all the time. When you fail to keep the camera level, vertical lines no longer appear straight up and down and one picture takes in more at the bottom of the view than does the other. If you try to correct the error in mounting, other difficulties are likely to present themselves. Nevertheless, this hard-and-fast rule presents an interesting challenge. I think I've found a way to break the rule and get away with it. All you have to do is find a subject that looks just as natural tilted as it does right side up.

That isn't as easy as it seems. Growing things look right only when they are growing upward, from the stems of flowers to trunks of trees. Bodies of water must lie flat. Buildings have definite horizontal and vertical lines that are disturbing if you tilt them. Hanging things have to hang downward, the way gravity pulls them. Most clouds have definite tops and bottoms. The main light in outdoor scenes comes from the sun or the sky, which is always overhead.

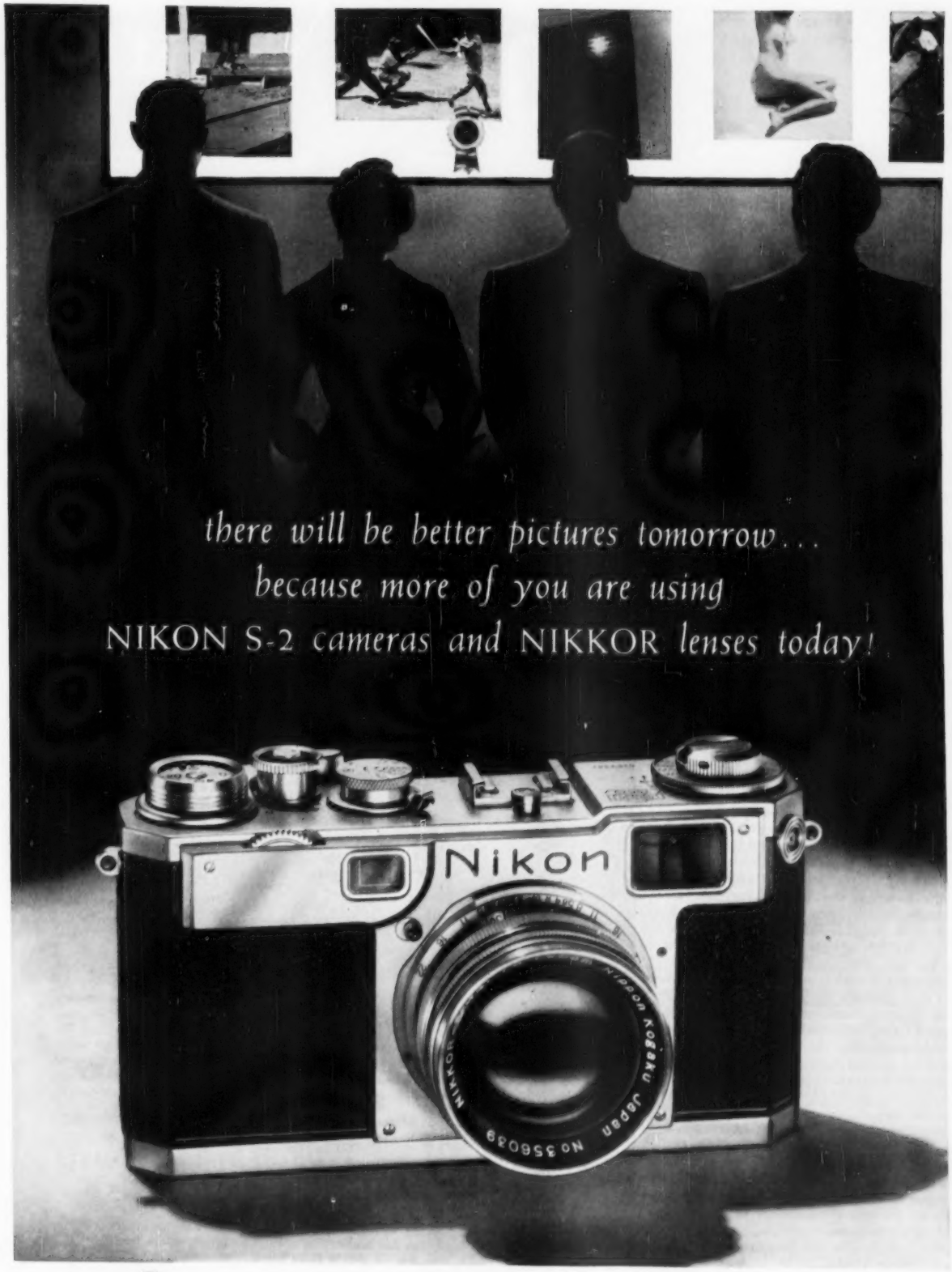
The accompanying plane picture comes pretty close to avoiding all the things that tend to spoil a picture taken with camera tilted. The plane is designed for vertical take-off and was resting on its tail fins, aimed straight up, when the photograph was taken. The stereo camera was held on its side, rotated a full 90 degrees from horizontal to make the plane seem in level flight. All the picture shows is plane, sky, and a little bit of cloud that doesn't present any clue to which way is up. The only thing that gives the trick away is the angle of the sunlight, which is streaming upward from beneath the ship and in front of it. It gives the slide an out-of-this-world feeling when you look at it. If you can imagine a plane flying over the sun, you can visualize the effect.

Projector Redesigned

The TDC Stereo Vivid, pioneer among three-dimensional slide projectors, has been redesigned for the first time since it was introduced. The new unit is called the TDC Stereo Vivid Deluxe and is a heavy-duty version of the familiar model. Its blower cooling system permits use of 750-watt lamps in place of the 500-watt lamps recommended for the original outfit. Its slide-carrier system has been changed so that separate carriers are employed for 2x2 and stereo slides, fitting in with the TDC Selectron magazine loading and storage system. It comes equipped with manual 2x2 slide changer, manual stereo changer, and Selectron changer with one tray. No adapters are required for the different changers, which are similar to those used in the manufacturer's stereo table viewers. Major difference between old and new changers is in their method of locating the slide in the projector. The original model employed grooved tracks at top and bottom, in which the slide centered itself. The new system holds the slide against flat front and bottom plates. The new model costs $179.50 with 5-inch lenses or $189.50 with 4-inch lenses. Price of the original, standard unit has been reduced from $169.50 to $149.50.

It Isn't Stereo, but . . .

One of the things that made modern stereo click was its hand viewing system. Entirely aside from the three-dimensional effect, the stereo viewer was the first really convenient and comfortable means of looking at 35-mm transparencies without setting up a projector and screen or a comparatively large table viewer. It provided a simple system for viewing slides with both eyes—a system far superior to anything available for regular 35-mm color photographers. The designers of 2x2 viewing equipment sensed this and went to work. Now there are two new 2x2 slide viewers on the market, both built to provide the slide maker with equipment similar to that the stereo worker has enjoyed. Both offer binocular viewing of 2x2 slides, but they achieve it



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through employment of entirely different principles.

More revolutionary of the new units is the Tower Pan-Ram viewer developed by Homer L. Seeger of Sears, Roebuck and Company. It employs an optical system designed by Dr. Jack C. Copeland for X-ray viewing. The story behind it is an interesting one.

Dr. Copeland's problem was to find an accurate and comfortable system of viewing for physicians faced with the task of analyzing thousands of miniature chest X-ray pictures. He solved it by putting together a spherical mirror, a half-silvered glass plate, and a field-flattening lens. The device was important medical news, but nobody saw its possibilities in photography. Meanwhile, Homer Seeger had a new and enviable job just taking it easy while dreaming up new items for the Tower Camera line. After suffering a serious heart attack he had been relieved of his responsibilities as photographic buyer. He was conscious of the need for something new in 2x2 viewers when he happened to see Dr. Copeland's X-ray unit at a medical convention. They got together, and the Pan-Ram viewer was the result.

You insert slides in the Pan-Ram face down—to get a picture in the correct position you hold the slide upright and then turn it forward on its face. Slipping it into the holder ejects the previous slide. The transparency is held directly beneath the unit's lamp so light shines downward through it. Rays from the picture go straight down through the field-flattening lens and on to strike the half-silvered glass plate, which is held at a 45-degree angle to the bottom of the viewer case. The used portion of the rays is reflected away from your eyes and into the spherical mirror, which reflects it back again so you can see the picture. It's the mirror that is the heart of the system, serving two purposes by providing magnification while making it possible for your eyes to converge on the image. In this respect it works like the concave mirrors sometimes used for shaving. The optical system is single—all its parts work for both eyes. It has a focal length of 76 mm. This gives 4 times linear magnification as computed according to the international standard system for expressing the power of simple magnifiers in terms of the size of an object viewed at 10 inches with the unaided eye.

Stereo fans familiar with the "ortho-stereo" relationship may wonder how the Pan-Ram stacks up in comparison with most 3-D viewers. If a viewer presents a scene in the same size as it would appear to the eye if you were at the original camera position, it is said to be "ortho." It fulfills this requirement if its focal length is the same as that of the camera used to take the picture. Most stereo cameras have 35-mm lenses, and most stereo viewers have lenses ranging from 44 to 50 mm. Thus the ortho error ranges from 34 to 43 percent of the camera lens' focal length. Most cameras used

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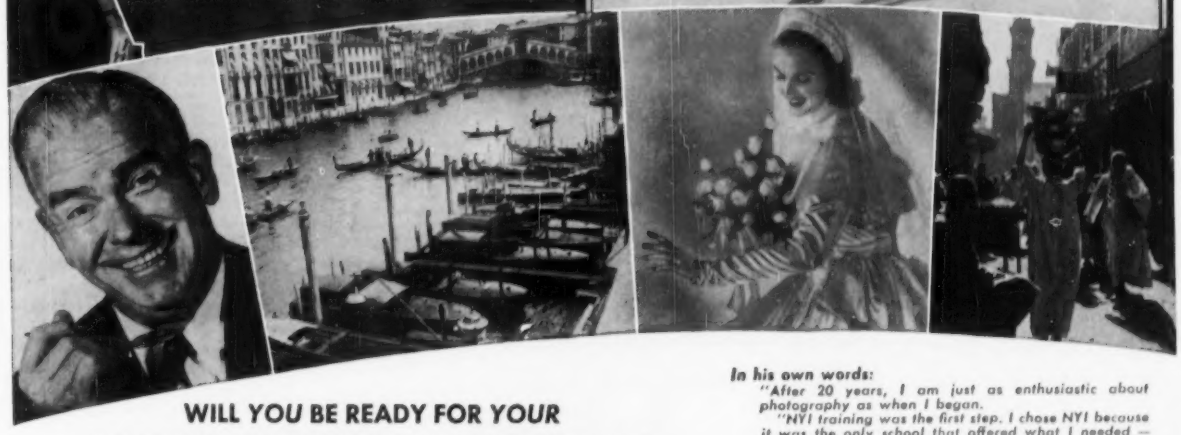

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to take 2x2 slides have 50-mm lenses. Thus the ortho error with 76-mm-viewer optics is about 50 percent. This is more than could be desired, but is much less than we are used to in viewing television or projected stills and movies unless we sit very close to the screen.

The Pan-Ram has a large, deep hood into which you look, made necessary by the reflecting glass plate which otherwise would pick up stray reflections. Its retail-store price is $12.95 with bulb and batteries. A 110-volt transformer and cord will soon be available as an accessory.

The economy package in the two-eyed slide-viewer field is the Bi-Lens 35, introduced by Sawyer's, Inc., makers of View-Master stereo equipment. It costs $4.95 with plastic diffuser for illumination by looking toward any light source, and probably will be available soon in electric models.

The Bi-Lens 35 looks like a small stereo viewer except that it has a two-inch slide channel centered at its back. Its two lenses are spaced 2½ inches apart. No focusing or lens separation adjustments are required. It employs an ingenious system of mirrors to present identical views of the slide to both eyes.

A half-silvered mirror, placed at a 45-degree angle to the transparency and directly in front of it, reflects half the light from the picture to a full-silvered mirror which is seen by the left eye. The half-silvered mirror transmits half the light to a full mirror behind it, which reflects it to a second full mirror viewed by the right eye. The plastic case is built accurately so the mirrors are properly aligned when they are placed within it.

Lenses of extremely short focal length can't be used in an optical system like this, for there must be a long enough light path from transparency to lenses to provide room for the mirrors. This limits the magnification of the Bi-Lens 35 to about 2.25 times linear or "5 times area" as described in the advertisements.

There's nothing related to true, two-eyed stereo about either of these new viewers, but people use words like "depth" and "space" to describe pictures they see in them. One factor contributing to this illusion is an aberration—curvature of field. Since the image upon which your eyes focus isn't flat, it creates a feeling of depth. Even if correcting this aberration were practical, it wouldn't be desirable because of the way it enhances the view. Another factor also is at work to produce dissimilarities between the views that the two eyes see. You look through different lenses and mirrors, or at least different parts of them. Their surfaces have minute irregularities and occasionally harbor specks of dust. These things hang in space and distort the picture ever so slightly to help create the depth illusion.

3-D Lens Attachment

Stereo close-ups are easy to take with a 3-D attachment for the Exakta VX camera designed by Seton Rochwite and manufactured by Kin-Dar Corp. of South Milwaukee, Wis., stereo-camera makers. It uses two lenses in one bayonet mount to take pictures in a stereo pair, each one four perforations wide. This is the same

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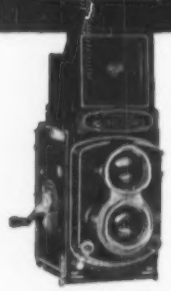

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format produced by the Leica Stemmar stereo attachment.

The lenses are 35-mm f/3.5 Steinheil Cassars with preset diaphragms, mounted to provide fixed focus at 12 inches. They are placed .625 inches apart. Supplementary lenses are provided for shorter distances. One large element mounts in front of both prime lenses to shorten their focus uniformly and, at the same time, to introduce a prism effect which keeps the images centered on the film. To take a picture, the photographer first decides on the field to be covered and the supplementary lens to use. After setting the aperture by turning the diaphragm ring on the attachment, he presses a button on top of the attachment which opens the aperture to f/3.5 for focusing. Sighting is done through the finder of the camera, which is moved closer or farther away until the image is sharp and properly centered. Then he presses the trip button to take the picture, and the lenses close automatically to the aperture previously selected before the exposure is made. The attachment is expected to find its greatest acceptance in medical and dental fields, in visual education and in science and industry. The price of the unit is $197.50, which includes two supplementary lenses and a protective case.

Lincoln in 3-D

A new stereo picture of President Lincoln was revealed to members of the Photographic Society of America at their 1955 convention in Boston. It was discovered by Carl B. Balcomb of the aerial reconnaissance laboratory at Wright Air Development Center in Dayton, Ohio. What makes it new is the fact that it never was intended to be a 3-D portrait. Its left and right views have existed independently ever since it was taken.

The Lincoln portrait was taken with a *carte-de-visite* camera, fitted with four lenses to take four pictures at the same time on the same plate. The four-lens system was popular because it aided mass production. After they were developed, the four pictures were cut apart and were used much as calling cards are today.

It happens that either the top or bottom half of one of these cameras is roughly equivalent to a stereo outfit. It has two lenses, takes two pictures at once from slightly different viewpoints. While inspecting early portraits of Lincoln at the Library of Congress, Balcomb realized he could create a 3-D picture if he could just bring the right pair together.

He began searching for *carte-de-visite* portraits of Lincoln that looked alike, but were not quite identical. Finally, with the aid of Lloyd Ostendorf of Dayton, a collector of Lincoln photos, he located the right pair. They were brought together from different states, probably hadn't been together since they were developed in Lincoln's time. Placed side by side and properly viewed, they present a three-dimensional likeness with a feeling of realism unequalled in previously known portraits.—

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camera clubs

by Whit Hillyer

There'll Always Be a Darkroom . . .

Wish I might have been on hand for a November program at *Springfield* (Mass.) *Photographic Society*. According to the club's bulletin, "Exposures," member Dave Mills was to speak on the subject, "Don't Give Up Your Darkroom Because of Color." (Same meeting was to include the regular monthly color slide competition, so you can't say these kids are biased!)

Seems to me this subject of discussion is fairly common among camera clubs nowadays. We're finally getting color film with sufficient emulsion speed to offer quite a bit of versatility. The proper exposure of a good color shot is, by and large, a simpler matter than the exposing, developing, and printing of a really good monochrome print. And color continues to be exciting. It must indeed occur to many an amateur that perhaps he'd better choose between color and black-and-white. The hobbyist so often has limited time for photography—and while he may want to shoot both monochrome and color he may also find that he hasn't enough leisure hours to justify the owning of darkroom equipment and the taking of color pictures too. Put this dilemma on a group, or club, basis, and it bears some analysis.

Many clubs, of course, long since made their decisions to concentrate on color. Several of these aggregations are howling successes. Other groups have found it possible and even desirable to maintain both slide and print sections.

You hear it said glibly that in a few years black-and-white prints will be a thing of the past. And right here is where I put in my personal opinion, which is a columnist's prerogative as well as yours.

As one who started in photography with just a fair camera and with a primitive enlarger located in a chilly cellar next to the coal bin (and 50 feet from my only source of water—the laundry tub!), I came to know the sense of achievement a good print can bring. (Yes, I made a good print.) Don't ask me why I didn't set up shop in the kitchen or the bathroom instead of the cellar—perhaps I didn't want to undergo the interruptions caused by the midnight feedings and diaper changes associated with babies in the home.

Anyhow, the darkroom equipment has improved greatly since those days. But a really good amateur print still represents a lot of loving care, much of which is exercised *after* the camera shutter is tripped.

This is not to minimize in any sense the skill which goes into a truly fine color shot. Your expert color-shooter, for example must know color harmony, either by training or by instinct. He must compose each shot carefully, since there's no cropping on the enlarging easel for him. His exposure must be a good one, since he can't compensate with intensifiers or reducers, or various grades of paper contrast. I simply feel that the two kinds of pictures have different appeals and that there's an important place for each.

Comparatively few color addicts do their own processing. Perhaps when the manufacturers give us a color printing process which permits of not only use but of some interpretive adaptation by the ordinary amateur, I may change my position somewhat. I've processed color film at home, and done pretty well with it—it's largely a time and temperature affair. But not one in 100 amateurs can put out a color print which does justice to the original transparency.

As of now, I feel that every photographer worthy of the name should progress through contact printing and simple enlarging to the making of enlargements for salon or at least local club consideration. When he knows his way around in a darkroom and can make a decent print without lousing up a dozen sheets of paper, then he's ready for color slides. Remember, I'm not talking about those individuals who just want to start right in and make color-shot records of family and vacations. Such folk probably should get right into color as directly and as easily as possible. They'll have a fine time with it, and rightly so. And the dollars they spend enable the manufacturers to improve the materials and equipment for those who want such improvements.

But at the camera club level, where we're all presumably trying to do as well as we can with the media available, let's at least become familiar with hypo on the shoe-tips before we go all-out for color.

Undoubtedly I'll hear from representatives of the color-only faction, along this general line: "We have a bigger and more enthusiastic membership than the rest of the clubs in our particular community . . . and what about the international interest in and exchange of slides . . . and why should we waste our time grubbing around in the dark . . . and why buck the inevitable . . . and who do you think you are, anyhow?"

All right, fire away, friends. If you've something to say, we'll try to make room for it here. Meanwhile I still maintain that the photographer without darkroom experience in print making is only half a photographer, no matter how many stars he rates in the slide field.

We hear that an admirable joining of forces to promote a more art-minded community is succeeding in Fort Worth, Tex., where the *Fort Worth Camera Club* and the Fort Worth Art Center are seeing things the same way.

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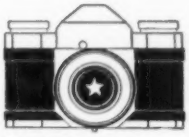
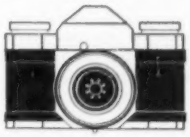


1. The shutter closes.



2. Diaphragm closes down to pre-set aperture.

3. Reflex mirror swings upward.

4. Cover plate moves upward.

5. Shutter opens and picture is taken.

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35-mm today

By Bob Schwalberg

Photographic Tests Require Careful Analysis

For the past two issues we've used this space to discuss the setting up of properly controlled tests for the practical evaluation of photographic materials and techniques. This business of making your own personal experiments to determine the relative value of competitive photographic materials and chemical preparations, to work out personal exposure and development procedures, establish guide numbers for electronic flash units, and so forth, is rapidly becoming a favorite indoor sport among a growing number of amateur and professional photographers. These people take an "I'm from Missouri" attitude and insist on finding out for themselves rather than relying solely upon manufacturers' instructions, claims, and advertising.

Thus far our discussion has been limited to various means of seeing to it that each test setup should be limited to only one unknown factor at a time. If we allow a number of variables to creep into a test we can never be sure which variable affected what, and the test will therefore be indecisive or downright misleading.

Two other factors are equally important. These are the *appropriateness* of our test in terms of what we're trying to determine, as well as the *manner* in which we analyze our test results.

To take a very obvious example, a test for effective emulsion speed under dim prevailing-light conditions ought to be shot under dim prevailing-light conditions, and not in broad daylight. Raw sunlight allows any film and developer combination to yield materially higher effective film-speed ratings than can be obtained under dim indoor-lighting conditions. But you'd be surprised at the number of emulsion-speed tests which are shot outdoors in sunlight where, incidentally, emulsion speed is generally the least of our worries. This also applies to tests for such things as maximum quality with thin-emulsion films, speedlight guide numbers, etc.

You're probably not going to use a super-fine-grain thin-emulsion film indoors under dim incandescent light, so make this kind of test under the types of good indoor and outdoor illumination levels where these films are used. Under very contrasty subject and lighting conditions, any film and developer combination is going to give its maximum resolving power. The real test for thin-emulsion film sharpness is what it can do under normal or less-than-normal contrast conditions.

Tests for flash and speeedlight guide numbers are tricky because they will vary with subject conditions and development procedures. To make any sense at all out of a guide number test, it is first necessary to standardize upon one development time. After the guide number for this development has been determined experimentally we may want to repeat our test for a different developer or development time. But first we must zero-in with uniform development. Again, if we shoot our test in a small room with white walls and ceiling we will obtain materially higher guide numbers than if we make the identical test in a larger room with darker-colored walls and ceiling. For this reason, many professionals prefer to make their guide-number tests outdoors at night where reflecting surfaces are few and far between. These tests result in lower guide numbers than can be employed under average shooting conditions, but they do have the virtue of being most reliable in the sense that we know that the guide numbers so obtained are the lowest that need be used. An ideal approach to guide-number testing would involve a number of tests made under different types of indoor and outdoor conditions which the photographer feels are typical of the situations he is most likely to encounter in actual shooting.

In evaluating tests, there's only one point about which I'd like to be absolutely dogmatic: *Make prints, don't rely solely upon your ability to "read" negatives.* This is especially important in cases where the film and developer combination results in some visible fog level. A negative that looks slightly fogged will, in many cases, produce better prints more easily than negatives which show less fog. As long as a visible fog level does not adversely affect our ability to make good prints, it is unimportant from a practical point of view. (In certain types of available-light negatives where the over-all subject contrast is high, a slight fog level is actually preferable to no fog. The fog acts to increase shadow density much more than highlight density, thereby reducing high over-all contrast.

The same thing applies to grain and contrast, and the only kind of grain or contrast that means anything is what appears in our prints. For example, if you examine available-light negatives very closely, you will often see a lot of grain in the thin shadow areas. When printed, however, these areas appear as blacks and the grain is completely invisible. Evaluation by means of prints is more realistic and eliminates the influence of unimportant factors which do not affect our final result.

The procedure used for printing film and developer tests for POPULAR PHOTOGRAPHY involves the following controls: All prints are made on a straight grade of No. 2 paper (or on Varigam with no filtering). No holding back or burning-in is permitted. All prints in a test series are made with the enlarger set for the same magnification, and all prints receive the same over-all exposure time by

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frankly speaking

How to do it better... more easily... with more fun

IF YOU WERE GIVEN — OR GAVE — A CAMERA

Owning a camera is only half the fun. The other half is in making your own pictures. Developing your own film gives you the personal control over processing that allows you to take advantage of a developer like X-33B which permits you to make big enlargements, or X-500 which allows you to shoot pictures even in the weakest light situations. Making your own prints cuts the photo-finishing bill down to ⅓—and you have finished prints of any day's pictures that same evening!

The first thing you need is a developing tank. This is a light-tight bucket in which the film is processed. With a tank you only need a darkroom (or closet, the basement, any windowless room) for the few seconds it takes to reel the film into the tank. Once the cover is on, you can be watching TV while the film is "cooking." Only an occasional shake is needed.

The most famous adjustable developing tank is the FR. It is one of the simplest to load film into because the film end actually attaches to the reel. Any photographer will explain to you what a difference this makes. The FR "Special" sells at all photo dealers for $3.40.

You should have a thermometer too, since the temperature of solutions determines how quickly they act; the warmer, the faster. FR makes the quality thermometer that most photographers depend upon.

You'll want FR's fine cellulose sponge squeegee to gently wipe down the wet film so that it will dry free of grit and water-stain marks. And the film clips for hanging the film to dry.

IT'S EASY TO MAKE PRINTS

In an hour or so, you've got dry film. Printing is easy. You can set up for it right on the kitchen table. Put down some old newspaper or a plastic tablecloth to keep Mom or the missus from fussing.

Then you need three trays—one for the developer, one for the water rinse, and one for the hypo that fixes the image. The FR Printrays are ideal. Firstly, they're unbreakable. Next, they are in 3 different colors for easy identification. They have ridges in the bottom that make it easy to handle the wet paper and a spout that makes pouring into a bottle easy. And they rock. This means even development of every picture. A set of three sells regularly for $1.75.

To expose the prints, you use a box with a built-in electric light for this purpose. FR had a special metal contact box designed which would ordinarily sell for about $5.

Everything you need—the tank, the trays, the thermometer, the safelight, the clips — even the FR chemicals, printing paper and an instruction book—is part of the brand new FR "Semi-Pro" Complete Developing and Printing Kit, selling for only $12.50—dollars less than the identical items purchased separately.

Write to FR for a FREE Little Man light pull that glows in the dark.

Get ALL of the fun of the new camera. Get or give an FR kit.

FOR COLOR SLIDE FANS

You don't have to wait till night to show your slides—if you have an FR Port-A-View. It's a table top projector with its own screen and automatic slide changer. Load in a few dozen

slides and just push the plunger for each new picture, projected big and bright on the book-size screen. A group of people can watch—even in a well-lit room. No shades to pull, no screen to set up.

Your photo dealer has one to demonstrate for you. It sells for $54.95, actually less than the price of many semi-automatic projectors which can only be used at night. It is perfect if you're a salesman who'd rather carry slides than samples.

If you would like more information about the FR developing kits or the Port-A-View, write to the FR Corporation, 951 Brook Ave., N. Y. 51, N. Y.

means of an electrical timer. After exposure, all prints are stored in a light-tight box and then developed simultaneously in the same tray of print developer.

Prints that are processed in this manner give us a fair evaluation of negative quality, even though many of the prints in the series do not begin to approach the maximum quality obtainable. Once we have a set of controlled prints, however, we can go back over our test negatives and vary exposure time and paper grade, and employ suitable manipulation. But if we don't start with straight unmanipulated prints on a normal-contrast grade of enlarging paper, we will learn little about the actual quality of the negatives involved. (Incidentally, it's a good idea to limit yourself to paper from the same box or envelope as variations from batch to batch do exist.)

The type of enlarger employed may greatly affect the results obtained from film and developer tests. Straight condenser enlargers require less negative density and contrast than diffusion types to produce equal print quality. Normal cold-light and diffusion enlargers tend to minimize graininess which is emphasized by the condenser-type lamp house.

Of course, if you're using one enlarger for all of your work, all you're really interested in is the quality obtained with this machine. But before you pass on any test data to your friends, make sure that you know what kind of enlargers they're using. To minimize this difficulty as much as possible when printing film and developer tests for this magazine, I use three enlarger lamp-house assemblies which are typical of the types of machines in general use today.

The last factor which will influence the results obtained from your tests is *you*. Your private notions about such things as negative quality, grain, sharpness, and so forth will determine how, and indeed *whether* a given procedure will work for you. Basically, there are three primary criteria for good negative quality. These are:

1. Adequate shadow detail in terms of tonal separation as well as density.
2. Open printable highlights which contain detail and contrast.
3. The least amount of unavoidable graininess—what we euphemistically refer to as "unobjectionable grain."

Obviously, the lower your standards the less your problems. The man who, for example, needs less shadow details and is willing to tolerate more grain can certainly employ higher effective film-speed ratings than the man who requires more negative density and less graininess. All theoretical considerations notwithstanding, the only kind of "developer power" or "effective film speed" which means anything at all is the number we can set on our exposure meter's film speed and still get acceptable pictures. And the only test for graininess, contrast or any facet of photographic quality is a photographic enlargement. As a friend of ours, a photographic manufacturer who has listened to photographers' enthusiastic theorizing for many years is fond of saying: "Show me the print." Nothing else really matters.—

NEW! SENSATIONAL 35mm SLIDE PROJECTOR

Revere "888"

Fully automatic—shows 36 slides all by itself

Lets you sit or stand anywhere in the room and explain your slides as they show themselves at the speed you choose!

No Levers or Buttons! "888" works by itself so you can enjoy your guests, move about your room. True, self-operating projector!

No Dangling Cords! Function knob lets you time the slide change to slow, medium, fast, semi-automatic or manual operation.

No Special Slide Mounts! Magazine holds 36 any type 35mm slides. Returns them in ready-to-show sequence. Permanent file, too.

Built-In Pointer! Enables operator to superimpose movable arrow over scene. It is ideal for lectures, etc.

500-WATT ILLUMINATION

The new Revere "888" brings new freedom and enjoyment to showing favorite slides! Just set the switch and it shows 36 slides as fast or as slow as you like—without your touching a finger to it! It operates completely by itself, bringing the most brilliant, sharpest pictures without effort. Illumination control for individual picture brilliance. 20 other exclusive features! See it demonstrated!

With durable case and 7 Revere magazine trays.....**$144.50**

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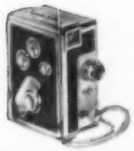
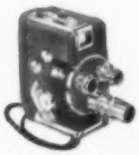


"40" 8mm Magazine Camera
Budget priced luxury! Drop-in loading; adjustable viewfinder; 5 speeds. Wollensak f/2.5 Wocoted lens, in fixed focus, inc. tax.... **$104.50**



"84" 8mm Turret Camera
Uses economical spool film. Versatile rotating 3-lens turret head. 13mm f/2.5 Wollensak Wocoted lens in fixed focus, inc. tax....**$122.50**

"85" 8mm Projector
Long-life 500-watt lamp; two 300 ft. reels; fast 1-inch F1.6 coated lens; extra 17mm Wide Angle attachment. With case. **$124.50**

"T-1100" Dual-Speed Tape Recorder
High Fidelity "Balanced Tone"; single-knob control. With microphone, radio attach. cord, 2 reels (one with tape), case.. **$169.50**

"T-700-D" Dual-Speed Tape Recorder
High Fidelity "Balanced Tone"; keyboard control. With microphone, radio attach. cord, 2 reels, (one with tape), case.. **$225.00**

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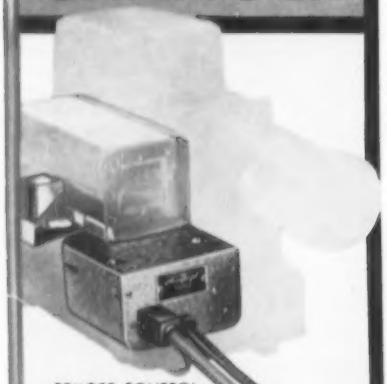

REMOTE CONTROL UNIT ONLY
$29.95
Slide Changer $14.95

Slip this compact attachment with 15 ft. control cord on slide changer and operate projector from across the room.

Connect with any tape recorder having provision for tape-film synchronization, and let tape operate projector.

For most projectors accepting the Airequipt Slide Changer

See the full Airequipt system. The most complete and convenient system ever devised for the showing and storing of 2 x 2 slides. Write for free booklet.

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what's new — Trade Notes and News

All data and descriptions ascribed to products listed herein are those claimed by the manufacturers and distributors, and listings are not to be construed as endorsements by POPULAR PHOTOGRAPHY. For further information write to address given in trade note.

CAMERAS & ACCESSORIES

VITO IIa is added to the camera line of Voigtlander Vito. A 35-mm bellows-type folding camera, it features a Voigtlander Color-Skopar *f*/3.5 lens; automatic film transport and exposure counter; direct-view optical finder; Prontor SVS shutters; speeds from 1 to 1/300 sec; M-X synchronization; self-timer; and depth-of-field indicator. Price is $54.50. U. S. distributor is Willoughbys-Wholesale, 110 W. 32nd St., New York 1.

NOVOFLEX bellows attachments are available for the Alpha-Lines. Permitting the use of the camera's lens for extreme close-up work, it makes available to Alpa users the whole range of lenses and accessories made by Novoflex for long-distance and close-up photography. Price of bellows starts at $34.95. More information from Royal Photo Dist., 78 W. 47th St., New York 36. In the west, write Miller Outcalt Co., 1050 N. Lillian Way, Hollywood, Cal.

KIN-DAR Hypo-Stereo attachment produces three-dimensional photographic close-ups of objects from 12 in. to within three in. from the lens. It is made for use with the Exakta VX camera. The basic unit is a bayonet lens mount with two 35-mm Steinheil-Cassar lenses, preset to be in focus at 12 in. away and covering a field size of 6 in. For shorter distances, supplementary lenses are required. Price is $197.50 (incl. two 12-in.-focal-length supplementary lenses and case). More information from Leslie F. Ballone, Kin-Dar Corp., South Milwaukee, Wis.

LENSES & ACCESSORIES

10-MM BERTHIOT *f*/1.9 wide-angle lens for 16-mm movie cameras is announced by Royal Photo Dist., 78 W. 47th St., New York 36. It is claimed to fit even the shallowest C-mount turret and can be used next to a 3-in. lens without interference. The lens accepts standard Series VI filters. Price is $85, FTI, and a special model for Pathe and other narrow turrets is available.

TELEPHOTO LENS for Exakta and Praktica cameras is distributed by Interstate Photo Supply Corp., 17 W. 17th St., New York 11. The Elitar-Soligor 135-mm *f*/2.8 lens has click stops and is of helical-focusing type with minimum taking distance of 5 feet. The lens, with preset diaphragm, costs $89.95.

DUPLIKIN is the name of an optical device for copying frames of uncut 16-mm color or black-and white films onto 35-mm still camera films. Used with any high-quality one-in. 16-mm C-mount lens, the proper film frame is locked in place and the camera held to daylight or artificial light, depending on film in camera. Present models are for use with Exakta, Leica, Contax, Pentacon, Practika, and Canon cameras. Other models, as well as one for copying 8-mm frames on 35-mm film will soon be available. Price of $39.50 includes carrying case. Manufacturer is Century Photographic Eqpt. Co., 10427 Burbank Blvd., N. Hollywood, Calif.

135-MM ALGULAR *f*/3.2 telephoto lens for the Alpa camera is composed of five elements; has a preset diaphragm, clickstops to *f*/32; extension lens mount allowing continuous focusing from infinity to three feet; and is claimed to be ideal for use as a diffusion disk for portrait work as definition at full aperture is rather great. For ultra close-ups down to a 1:1 subject to negative ratio, extension tubes or bellows may be inserted between lens and extension mount. Price is $129 and distributor is Karl Heitz, Inc., 480 Lexington Ave., New York 17.

FLASH

ANSCO SYNCHROFLASH TESTER originally for dealers only, is now available to all photographers. It tests shutter synchronization, flash circuits, flashlamps, batteries and B-C cartridges, and measures 2x3x4 in. A product of Ansco, Binghamton, N. Y., the price is $7.50.

BRAUN HOBBY STANDARD electronic flash unit is introduced by E. Leitz, 468 Fourth Ave., New York 16. Operating on either three flashlight cells, 110- or 220-volt a-c, or a wet-pack battery, it features a guide number of 35 for Kodachrome; a 50-degree light-beam angle which can be increased to 70 degrees; and is claimed to be hot-spot proof. Price is $55.50, less batteries and connecting cord. Recharger for wet-pack battery is available.

FLASHGUN called Alpex Folding BC is being introduced by Interstate Photo Supply Corp., 17 W. 17th St., New York 11. The new unit has a built-in test lamp, bulb ejector, button contact for open flash, and built-in clip to slip on the camera shoe. It is molded of durable plastic and has an ASA adapter and cord with standard household plug on one end and PC outlet on the other. With pigskin carrying case, Alpex costs $9.95 with battery.

MINOLTA JR. B-C flash unit is claimed to keep working at top efficiency until energy has been completely drained from the battery. A self-charging system prevents release of energy to capacitor unless a flashbulb is in the socket. Pressing a button checks lamp, battery, and capacitor. Folding reflector opens to 5-in. in diameter and connecting cord fits American and German flash terminals. Price of $8.50 includes capacitor and zippered carrying case. Distributor is FR Corp., 951 Brook Ave., New York 51.

KODALITE SUPER-M FLASHHOLDER, a B-C unit, comes with interchangeable screw-on tips for ASA bayonet and European-type flashposts. Bracket is slotted for attachment to any camera regardless of tripod-socket position but a separate tripod socket is provided in the bracket for more-secure tripod mounting. Power is supplied by a 15-volt photoflash battery or by two penlight cells. Slide calculator on

back permits computation of exposure. Designed for use with M-2, Nos. 8, 5, or 25 lamps, an M-2 adapter (supplied) stores in battery case when not in use. Push-button release ejects used lamps. A product of Eastman Kodak Co., Rochester, N. Y., price is $9.95.

AMGLO HIGH POWER A-C or battery powered electronic flash unit is announced by Amglo Corp., 2037 W. Division St., Chicago 22. Power rating of 200 watt-seconds is obtained when camera light only is used; 380 watt-seconds with three extension lights. Also featured is half-power switch; indicator switch; automatic synchronization to all X-shutters; 1/650-sec flash duration; detachable A-C cord; Amglo HD-3 reflective base flashtube giving over 10,000 flashes at 6500 K; 6¾ in. specular Alzak step-type reflector. Price is $249.95. Accessories available include camera brackets, flash gun mounts, lampstand fittings, and H-255 battery charger. Brochure available.

GRAFLEX, INC., 154 Clarissa St., Rochester 8, N. Y., is now supplying (on special order) a two-wire conversion permitting the solenoid shutter release of a Pacemaker Speed Graphic to be fired by batteries in the camera's rangefinder. Two photoflash-type penlite batteries in the Rangelite will fire the solenoid about 400-500 times with bulb removed, and about 200-300 times with bulb retained. Price of installation is $15, by factory technicians.

LIGHTING EQUIPMENT

BROWNIE 4-LAMP MOVIE LIGHT is announced by Eastman Kodak Co., Rochester 4, N. Y. Used with movie cameras equipped with f/1.9 lenses, it is claimed to give adequate light at distances up to 18 ft. For close-ups, two lights may be switched off. Hand clip on removable bracket permits lights to be above camera-lens axis. For most 8- or 16-mm cameras fitted with a tripod socket, price is $8.45, less lamps.

TRIPODS & ACCESSORIES

FLUID CAMERA HEAD, introduced by O'Connor Eng. Labs., 520 Winona Ave., Pasadena 3, Cal., is claimed to move a 16-mm camera vertically, horizontally, or diagonally with smooth, controlled action and to eliminate jerking. Designed for use with Arriflex, B & H 70 and Magazine, Cine Special, Bolex, and Kodak movie cameras, price is $275 and detailed information is available.

QUICK-SET, INC., 8121 N. Central Pk. Ave., Skokie, Ill., introduces the new line of Super Quick-Set Elevator tripods with accessories for picture-taking and projection. A worm-gear-driven Gear-A-Pan features full 360-degree panning by means of a hand crank operating either left or right at all speeds. Another accessory, the Table Top, attaches to the Elevator column (after panhead is removed with screw-driver-type pan handle) converting it for use as a projector table. Hand crank elevates Table Top to desired height. Prices are, respectively, $7.50 and $5. All following models feature the Tri-Lock panhead for simultaneous or individual control of pan and tilt by means of a Selector Screw. Champ II tripod for sizes up to small press and movie cameras has three-section legs; extends to 71½ in. (column has a 15-in. rise) and telescopes to 26 in. Husky II takes professional-

(*Continued on page* 130)

NEW! EDIXA STEREO CAMERAS

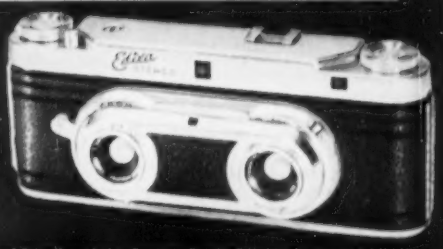
open a new era in 3-dimensional photography!

PRESENTING **... Great, New Edixa Stereo Cameras ... destined to open a new era in 3-Dimensional photography! Plus the fabulous, new Steinheil Stereo Redufocus Wide Angle Converter ... the most outstanding photographic discovery of our time!**

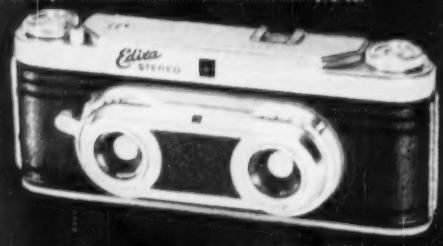
Edixa Stereo Model IIIA shown with Steinheil Redufocus Wide-Angle Converter Set

EDIXA RANGEFINDER STEREO WITH BUILT-IN EXPOSURE METER ... MODEL IIIA
This is the greatest, most-advanced Stereo Camera of our age. This spectacular New Edixa Stereo Camera has a Coupled Rangefinder and built-in Photo Electric Exposure Meter ... and two matched f/3.5 Steinheil Cassar color-corrected lenses in two coupled Prontor-SVS shutters with 9 speeds ... settings of bulb, 1 second, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/300 and self-timer. Also, built-in flash synchronization and rapid-winding lever, double exposure prevention, self-cocking lever, cable and tripod sockets and other features. Beautifully finished in satin chrome and black morocco leather. Priced at only ..... **$99.50.**

NOW! INTRODUCING WIDE-ANGLE PHOTOGRAPHY FOR STEREO!
Steinheil's Scientists have just invented the New Redufocus which enables Stereo Photographers to instantly convert an Edixa Stereo to a Wide-Angle Stereo Camera! The Redufocus is attached, in a matter of seconds, to the Edixa Stereo Camera, and provides for outstanding interior shots, groups, sports, etc. The Redufocus wide-angle converter set is priced at **$119.50** with compensating viewfinder, and luxury leather case.



EDIXA RANGEFINDER STEREO ... MODEL IIA
The world's most magnificent Coupled Rangefinder Stereo Camera with Fully Automatic Features and f/3.5 Steinheil Cassar color-corrected lenses in two coupled Pronto shutters with speed settings of bulb, 1/25, 1/50, 1/100 and 1/200th of a second; also, self-timer, built-in flash, rapid-winding lever, double exposure prevention, self-cocking lever, cable and tripod sockets. Custom finished in black morocco leather and satin chrome. Priced at only ..... **$79.95.**



EDIXA STEREO ... MODEL IA
Glamorous as it is efficient, the Edixa Stereo IA will give you pictures of "exhibition" quality. Two matched 35-mm., f/3.5 Steinheil Cassar lenses assure you of crisp, needle-sharp color pictures every time! The rapid-winding lever transports the film, cocks the shutter, moves the film counter and prevents double exposures. The Vario shutters will give you a choice range of speeds from 1/25th to 1/200th second; other features include a body shutter release, built-in flash, built-in accessory shoe for rangefinder, cable and tripod sockets. The Edixa Stereo IA is finished in satin chrome and black morocco leather, and is priced at only ..... **$59.95.**

See these new, exclusive Edixa Stereo cameras at your local dealer or write for colorful brochure.

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candid shots by the Editors

Another Single-Subject Issue

"What makes a good picture?" The man who made the world's first photograph must have asked himself the question before he made the world's second photograph. It's the kind of question that has challenged and baffled creative man since the days of the cave paintings. How much depends on technique? How much on inspiration? How much on experience? How much on—anything else? Nobody's answer will ever satisfy everybody. As for photography, the discussion has been proceeding for only a little more than a hundred years, and we have now arrived at a fairly workable basis for disagreement.

This issue is an attempt by the editors to organize and present all the elements that contribute to making a photograph good. It will serve its purpose if it makes you think about your own pictures: what makes them good, what could make them better. Compare your work with our illustrations of composition, arrangement, camera angle, lighting, and the dozen other aspects of picture-making. We think it's a fascinating and instructive issue, and hope you feel the same.

Our staff worked hard on picture-taking as well as copy-writing for this special issue. Art Director Al Gruen took the picture of the bride which is used in the "Printing" feature, and Art Goldsmith, Features Editor, made the shots of model Gus Thorner on pages 46-47. The cameraman in the background of the beach pictures is Editor Bruce Downes, who (quite understandably) assigned himself to the same job.

The photograph of a deserted road, which is used to illustrate "Cropping" on page 36, is the work of Jean Magis of Laon, France. It was a prize winner in our 1954 International Picture Contest.

New Kodak Research Director

One of the grand old men of American industrial research has retired from his post, to be replaced by another almost equally distinguished research technician. Dr. C. E. Kenneth Mees, who has guided Eastman Kodak Company research for 44 years, and is the author of the classic *Theory of the Photographic Process*, has stepped down, and his post as vice president in charge of research has been filled by Dr. Cyril J. Staud, himself a veteran of three decades in industrial research, most of it with Kodak. If Dr. Staud's era is as filled with photographic progress as was Dr. Mees', we're in for some great years!

Mees Staud

Our Winners on Television

We're proud and excited about our television debut, which many of you in the New York area probably saw. The occasion was our annual exhibition of prize winners from the International Picture Contest, in the Kodak Photorama in Grand Central Station. Some of the top prizes were awarded in person by our President, B. G. Davis, and Editor Bruce Downes discussed the merits of many of the pictures on display. You'll find a story and pictures of the event on page 101 of this issue.

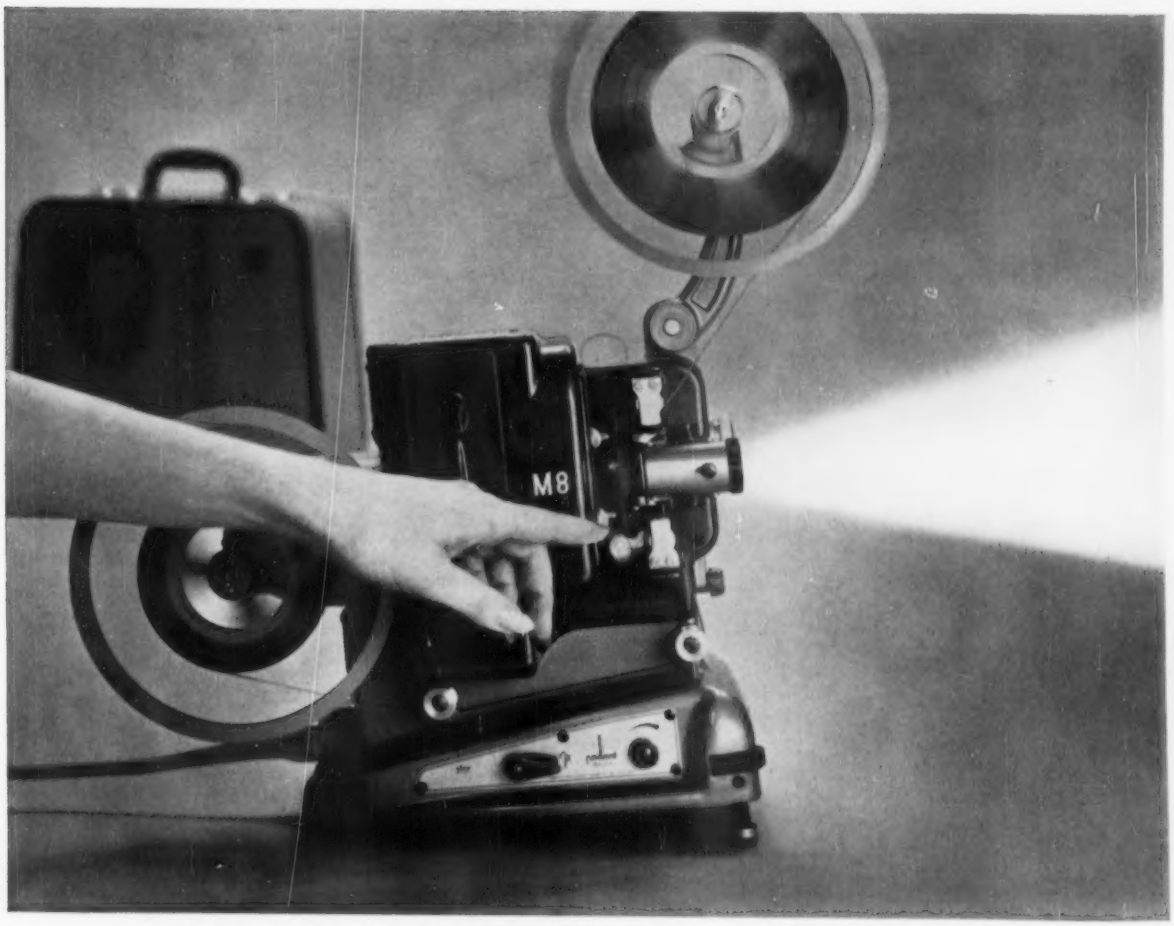
The Semantics of Photography

We're a magazine for photographers, and we are always surprised (and pleased) when non-photographers show interest in something we print. For example, Mr. E. L. Gates, an editor of the *General Semantics Bulletin*, noted with interest the controversy about *The Family of Man* exhibition which ran in our Letters column last spring. The *Bulletin* is published for members of the Institute of General Semantics, which is interested in "linguistic epistemologic scientific research and education," or (roughly), how words work in our communication about science and culture. Mr. Gates was most concerned about the use of the word "man," which semanticists like to define as "a time-binding class of life." He reprints Mr. Fred Ringel's "minority report" in full, and then says that the exhibition should rather have been named "The Family of Mammals," because of the excessive concentration on man's procreation, pregnancy, and childbirth. He is also surprised to find that more than half the pictures in the show had appeared in print before, even though two million prints were offered to Mr. Steichen for selection. He concludes, "Mr. Steichen is no charlatan, so this must be considered as evidence of the inability of photographers today to represent the intangibles of humanity. . . . It would be interesting if students of general semantics who are interested in photography could produce some prints which would present the 'Family of Man' in terms which recognized man's vast cultural diversity, yet underscored man as a time-binding class of life." It would be interesting indeed, and photography might find itself a valuable contributor to the arsenal of semantics—or, in layman's terms, "understanding."

High School Photographers!

There's still time to enter POPULAR PHOTOGRAPHY'S High School Picture Contest. Closing date: January 31. See announcement on page 83.

Bolex Swiss precision . . . . . a marriage of skill and science



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A POPULAR PHOTOGRAPHY SPECIAL ISSUE

WHAT MAKES A GOOD PICTURE?

TWENTY EXPERTS AND A SPECIAL ISSUE

EXPLORE PHOTOGRAPHY'S $64,000 QUESTION

Does anyone really know what makes a good picture? We asked twenty famous experts—photographers, writers, editors, critics, teachers—to answer the question in fifty words. They tried, and some of them bravely held themselves rigidly to the fifty-word limitation. Others took more than twice that number, and nearly all agreed that 10,000 words would not be enough. . . . But the question was a challenge, and it aroused challenging answers from the experts. What they had to say was stimulating, and before we knew it we were kicking the question around at editorial bull sessions. Result: this unique special issue, which explores the question from all angles and comes up with a variety of answers calculated to start you thinking your way to better pictures.—▶

THE COMPLETE SYMPOSIUM BEGINS ON PAGE 88

ADAMS:
The obligation of clarity is paramount.

BRODOVITCH:
It should have the impact of intrigue, novelty, or shock.

BRUEHL:
Subject matter is of first importance

CARTIER-BRESSON:
There must be harmony between subject and form.

CHASSLER:
It must carry its own weight and deliver its own impact.

COSTA:
The one indispensable ingredient—it must be an eye-stopper.

DE DIENES:
It should surprise, horrify, amuse, or exalt.

DESCHIN:
Only a "good" picture can tell us what makes a good picture.

EISENSTAEDT:
What I look for in a picture is great simplicity.

FASSBENDER:
A good picture is a replica of a visual image.

FEININGER:
Good photographs enrich the experience of the observer.

FEINGERSH: *Mediocre pictures may follow a formula, good ones seldom do.*

HALSMAN:
The very essence of the subject must be captured.

HARKNESS:
It must express something worth expressing.

KARSH:
Human interest is not enough . . . there must be craftsmanship.

NEWHALL:
From a good photograph we can learn of life.

PENN:
It communicates a fact, touches the heart.

RAWLINGS:
A good picture must be eloquent enough to get at the emotions of people.

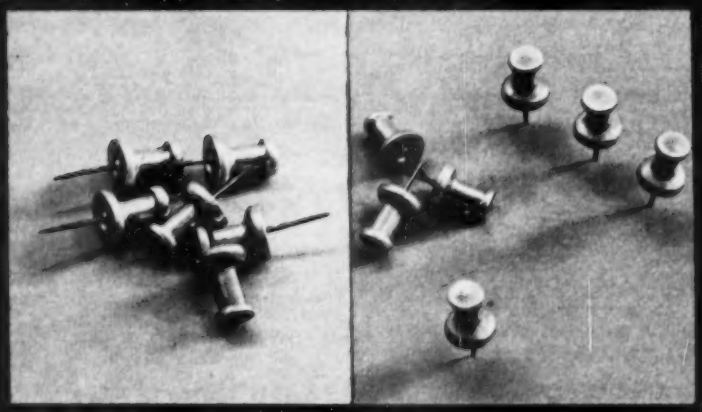
ROTH:
The photographer is the conclusive element.

ROTHSTEIN:
It should open new vistas, enrich the visible world.

COMPOSITION IS

Composition in the broad sense, means the organization of all the elements in a picture to create an effective whole. On these two pages are summarized five ways in which a photographer can achieve good composition. Each method is covered in greater detail elsewhere in this issue.

1 arrangement



The most obvious way to achieve good composition is physically to arrange the objects in front of your camera. Compare the chaotic pile of push-pins at left with the simple but coherent design at right. Of course, a person can be posed or directed so that an interesting picture composition results.

SEE ARTICLE ON ARRANGEMENT

4 cropping

The basic composition of a photograph is jelled at the moment of exposure. However, judicious cropping often can improve the picture, remove faults, and even create a new picture or pictures within the original picture, as demonstrated by the "straight" and cropped versions shown above.

SEE ARTICLE ON CROPPING

BASIC- *Here are five ways to control it*

2 camera angle

Another basic compositional control is choice of camera angle. In the two pictures above see what a difference is made simply by shooting up rather than head-on. Unlimited compositions can be found for most subjects by altering the viewpoint and angle from which you shoot.

SEE ARTICLE ON CAMERA ANGLE

3 light

Light, too, plays an important role in picture composition by revealing form, creating patterns of light and shadow, and emphasizing or suppressing details. Compare the effect of backlighting, left, with direct sidelighting, right.

SEE ARTICLE ON LIGHT

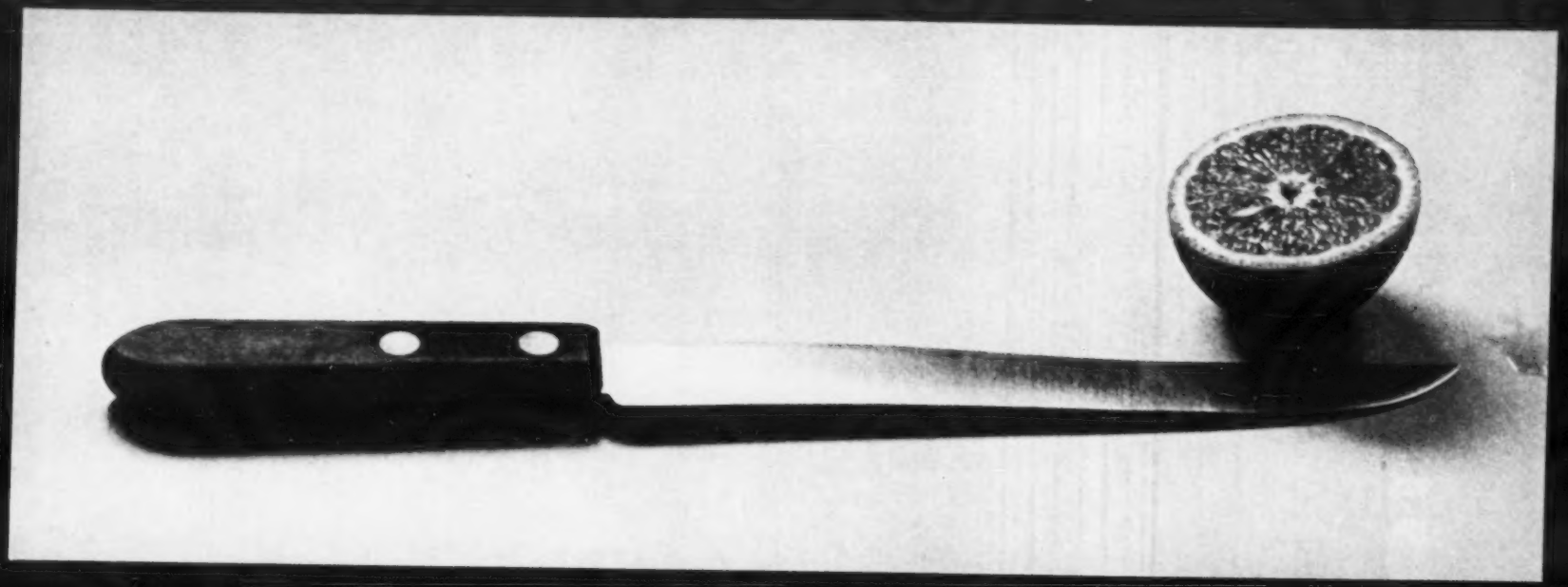
5 printing

A photographic composition consists of areas of tone, which often can be controlled in the darkroom through choice of paper or filter contrast grade, by dodging, or by burning in. For example, the above picture is improved by burning in the distracting background blob.

SEE ARTICLE ON PRINTING

ARRANGEMENT-

planned and spontaneous



A STILL LIFE is the one photographic subject which can be physically arranged to create a desired composition. A simple but pleasing example of such a formally arranged picture is this knife and orange by Jerome V. Deyo, a winner in the 1955 POPULAR PHOTOGRAPHY Picture contest. Deyo composed the picture carefully by arranging the two subjects on his kitchen table and checking the results in the viewing screen of his Rolleicord, then photographed them by indirect window light. His exposure was for one full second at *f*/16. He placed the camera on a tripod, of course.

CANDID AND ACTION pictures are a challenge to the photographer. Unable to arrange the subject physically, as with many still lifes, or even to pose the subject, as with most portraits, he must rely on his quickness of eye and sense of timing to achieve a well-organized picture. He must watch for what Henri Cartier-Bresson calls "the decisive moment" when the kaleidoscope of shifting images in front of the camera momentarily forms a good composition. An example is Shoji Yamamoto's happy picture of scampering children. Although completely free and spontaneous, the five figures form a well-organized design. When shooting uncontrolled subjects-in-motion, it usually is necessary to take several exposures, in the hopes that at least one will be right. Although the photographer's skill is important, luck plays an inescapable role when taking pictures of this type.

PORTRAITS can be "arranged" to considerable extent by directing or posing the subject, and by careful choice of camera angle and shooting distances. These compositional controls were utilized by Thomas A. Richards when he produced this simply but powerfully arranged portrait of an Ohio farmer and his horse. Note the contrast in mass and tone; the predominantly darker tones of the man's figure against the white head of the horse. Notice also the strong sweep of the arm and shoulder curve, and the unconventional but effective cropping off of the horse's muzzle. Adding to the composition's effectiveness is the way the horse's eye turns wildly backward toward his master, setting up invisible lines of tension which bind the picture together even more strongly. Richards made this POPULAR PHOTOGRAPHY prize winner with a Rolleicord. Exposure, on Tri-X, was 1/100 second at f/8.

CAMERA ANGLE-

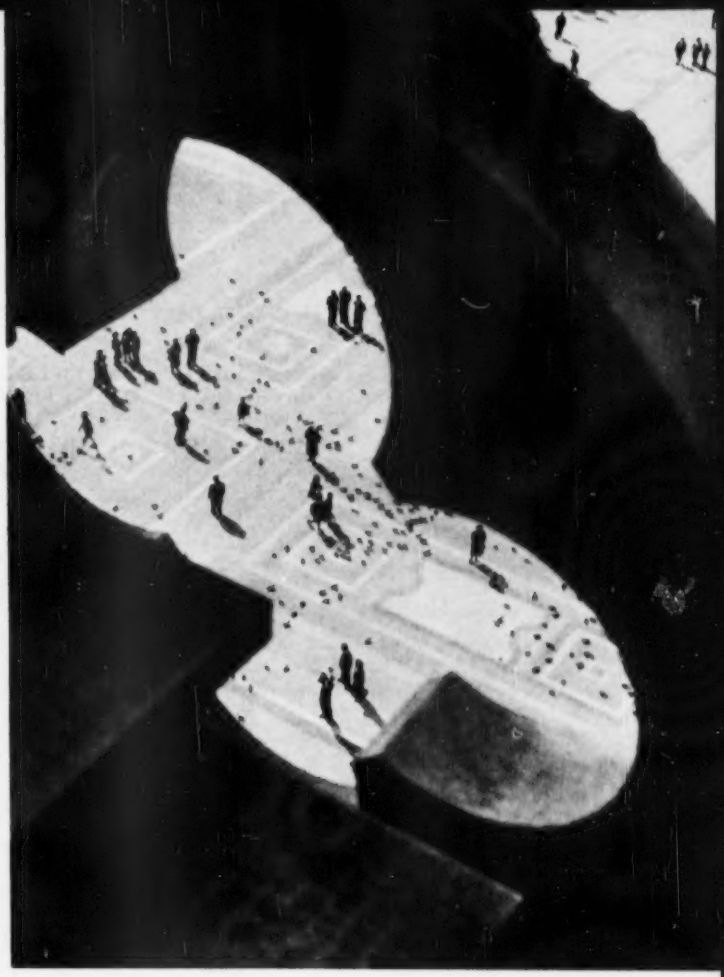
it often makes the picture

A CAMERA can be moved up and down, and to the right and left, and everytime it changes its angle of view, you get a different picture.

In angle of view, the photographer has a powerful tool for making good pictures. With it he can exaggerate or minimize the stature of his subject. He can make a dramatic situation out of a passive one. He can create new relationships between elements.

On these pages you will find three photographs where a carefully selected angle of view paid off with exciting results. Photographer Dan Rubin magnified a whisper into an almost cloak-and-dagger event by choosing a low angle against the light. People and pigeons in a Zurich, Switzerland, square take on new significance after being photographed through the railing of a high balcony by Adolf Wetzel. Photographer Jean-Philippe Charbonnier constructed a unique "glass stage" (see page 82 for full details) to get an unusual ballet shot.

Before pressing the shutter release, the good photographer will have viewed his subject from many different angles. Sometimes he will shoot his subject from several angles and determine the best picture from his contact sheets. It only takes a few seconds to move your camera from position to position but in those seconds you will be using one of the most important tools in photography.—▶



Howell Conant

Arthur Goldsmith

LIGHT—

the indispensable element

Hiroji Tsuzaki, from POPULAR PHOTOGRAPHY International Picture Contest

THE Greeks had no cameras, but they gave photography its name. A photograph is a "light-picture"; it owes its existence to light. So light and the way it behaves are matters of first importance. On these four pages are seven pictures to illustrate the point, each made with a different kind of light. They show how light sets a mood, dramatizes commonplace subjects.

Howell Conant's picture was an experiment with light: three 100-watt bulbs on drop cords are the only illumination. This is a case in which the light source itself is part of the composition. Exposure, on Tri-X, 1/50, f/3.5.

Arthur Goldsmith, photographing a pretty model on a Long Island beach, used the same kind of light that Daguerre and Niepce employed when the camera was still a "magic box": direct sunlight. He used a twin-lens reflex and Plus-X film, shot at 1/125, f/11.

Hitori Yosizaki of Japan made the simple, moody picture of trees in a snowstorm; its light quality is that of a steel-gray winter day. He shot at 1/5 second (to blur the snowfall), f/8, with a Rolleicord and Fuji Bellona film.

Another mood—one of isolation and mystery—is caught in Frederick L. Thompson's picture of a girl in an airshaft window. It was made with a Rolleiflex and Super-XX film, at 1/25 second, f/4. A trickle of subdued daylight from above gives the photograph a simple, almost theatrical quality.—▶

Pictures continued

Frederick L. Thompson, from POPULAR PHOTOGRAPHY International Picture Contest

Yip Cheong Fun, from POPULAR PHOTOGRAPHY International Picture Contest

LIGHT continued

In Singapore harbor, Malayan photographer Yip Cheong Fun achieved an unnatural but dramatic result with an orange filter on the lens of his Super Ikonta. Attention is focused on the light reflected on the water, which gives it an oily, ominous look. Exposure: 1/100, *f*/11.

Shooting against the light in an apartment window, Morris Jaffe got this subtly back-lighted portrait of a little girl. No reflected illumination lightens the face, and the eye must search for detail in shadows. Jaffe used a 35-mm Nikon, Tri-X film, exposure of 1/100 second at *f*/4.

From the deep shade of a pathway in a Los Angeles park Otto Stupakoff silhouetted the figure of a girl in Victorian costume against the bright sky. His exposure (1/200 second, *f*/4, Super-XX) was too much for highlight detail, too little for shadows. Result: simplified composition.

Morris H. Jaffe, from POPULAR PHOTOGRAPHY International Picture Contest

Otto Stupakoff, from POPULAR PHOTOGRAPHY International Picture Contest

CROPPING-

corrective and creative

Full-size print of beach shot, above, is adequate, but cropping of top and bottom eliminates some of unimportant areas (see horizontal version at right). Further cropping of unnecessary portions at left and right of print permits enlargement of main subjects for added attention (result at far right).

GOOD composition isn't always achieved in the viewfinder. If you don't get it when you trip the shutter, cropping (printing only part of the total picture area) gives you a second chance. And used imaginatively, cropping can turn a perfectly passable though ordinary picture into a spectacular one.

When composition is poor, corrective cropping is a necessity, for eliminating unwanted, distracting details and areas, adjusting the shape of the print, and leveling off any tilted horizon lines so that they run square with the print edges.

As a creative tool, cropping can do wonders—making possible any number of different versions of your original negative. Look at the image projected on the enlarger easel and experiment with all the possibilities before deciding on your final print. The shots on these two pages, all made from the same negative, illustrate a few of the infinite possibilities.

A full-size print of this negative is reproduced in the upper-left corner of this page. Though the complete version makes an adequate picture, the different croppings applied to it have produced more interesting and effective results.

The first step was to trim off some of the unimportant areas at the top and bottom, resulting in a horizontal print. Next, a portion of the area at the left and right were eliminated, thus enlarging the two subjects. More severe cropping was exercised next, creating an entirely new picture, with a single subject. The final version, a radical one that bears little resemblance to the original, is an extreme close-up, a graphic demonstration of the endless possibilities of a simple darkroom technique.—

Cropping is carried several steps further into realm of the purely creative in producing these completely different pictures out of original. The version at right eliminates one subject, greatly enlarges the other. Extremely radical cropping produces the striking, dramatic close-up that is shown below.

PRINTING-

STRAIGHT PRINT was made of problem negative on normal No. 2 grade printing paper with exposure intended to give best possible rendition to shadows. Attempts to "burn-in" overexposed highlight areas and hold back thin shadows in the negative were unsuccessful because of the limited gradation range of the paper and the difficulty of giving even exposure to all the areas that required extra printing-in.

3 Next step was to "burn-in" front of bridal gown from bosom to hemline with enlarger lens opened up to f/4 and filter removed from light path. Exposure (8 seconds) was made with light passing through a hole the size of a quarter cut through the center of a sheet of cardboard—to keep it from spilling into adjoining areas of the picture.

1 First corrective step was to switch to High Speed Varigam paper and expose for 18 seconds through No. 7 Varigam printing filter with enlarging lens stopped down to f/8 (using Omega B-6 enlarger fitted with Aristo H-1 cold-light grid source). The paper and printing filter combination was roughly equivalent to the use of a medium-hard grade of standard printing paper.

4 Shafts of sunlight on stone wall behind subject had to be obliterated at this point by burning-in the wall with a soft printing filter that would blend the area with the dark masses above and below. No. 2 Varigam printing filter was used with the enlarger lens opened to f/4 and a 15-second exposure through a jagged hole cut in the side of a sheet of cardboard.

2 Additional exposure was given the brightly illuminated principal figure and somewhat less to the detailed shadows by printing through a No. 5 filter for 15 seconds while holding back the pillars to the right of the figure, the top of the main aisle way, and the upper left hand corner of the picture with continually moving hands.

5&6 Halo at top of subject's head caused by overexposure and lens flare was removed by 5-second exposure with No. 3 printing filter directed through tiny hole in moving cardboard. Detail in left shoulder was printed-in by 20-second exposure with the same filter and local printing aperture.

the final control

By ARTHUR BARNEY

GOOD print quality is an essential part of a good picture. The impact and message of a well-composed picture loaded with interesting and important content can often be lost when details are obscured in masses of "soot and whitewash"; also when the tone relationships delineating the images in the scene are out of kilter. This doesn't mean that the finest technical print quality can make a good picture out of a bad one or that good print quality must fit a standardized formula. On the contrary, the best quality can't save a dull photograph, and good print quality may, in the light of varying subject matter, be light or dark, contrasty or flat.

Certain well-exposed, properly processed negatives are easy to print and offer no quality problems. Other negatives may have been exposed on the run or processed in a batch or under other circumstances that might make them hard to print for best possible quality. In the latter instance, the skillful darkroom worker can exercise a number of printing controls which bring out the best quality the negative is capable of rendering. (*Continued on page 90*)

7&8 The last two corrective steps were intended to subdue distracting foreground details and props so the figure would stand out from a dark background. The floor was given an additional 20-second exposure, without a printing filter, and the lower right-hand corner an extra 10 seconds to produce a pure black.

OFFBEAT COLOR-

here are a dozen ways to get it

COLOR-FILM manufacturers are careful to specify how their products are to be used for faithful rendition of color values. But photographers are sometimes just as careful to ignore the recommendations, either by accident or intentionally. And sometimes, of course, the results are pitiful. But often a rule-breaking picture turns out better than it could ever have been made "by the book." This may have happened to you by chance, or you may have done some experimenting. Since you can't depend on luck, it's good to know what kinds of offbeat color pictures you can get with manipulations of exposure, light, camera technique, and processing. Since the trend is toward color materials that you can develop yourself or have processed to order, the possibilities are expanding. Here is a rundown on twelve ways of getting out-of-the-ordinary results with color film.

1—WRONG FILM. The use of daylight-type color film with tungsten light will cause excessive yellowness. And the use of tungsten emulsions in daylight will result in a bluish picture. John Shrader's picture of a small boy, on the facing page, is an example of the latter.

2—FORCED DEVELOPMENT. When the development time of color film is extended to increase effective speed, there is some alteration of color rendition, usually in the direction of red or purple. (*Continued on page* 86)

Wrong film: John Shrader of Glenmoore, Pa., photographed his young son by available daylight in late afternoon, using Kodachrome Type A film, balanced for photoflood illumination. Since there was no direct sunlight on the subject, the light was bluish, as it is after sunset. This subdued flesh tones, resulting in a "minor key" effect in keeping with the boy's expression. Shrader used a Retina; exposure 1/5 at *f*/3.5.

Forced development: Hugh Bell shot the girl in the striped shawl at twilight, and because light was weak he had to increase development time. He was using Ektachrome Daylight Type, and an exposure of 1/25 second at *f*/2. This film is rated by the manufacturer at ASA 32, but Bell was actually using it at ASA 100. This "pushing" caused unbalance on the red-purple side, and flesh tones appear somewhat unnatural.

Late sun: Hugh Bell made the full-face portrait of a girl with late sunlight, in the shade of a tree. The light quality was so warm that even in shadows (which would otherwise be bluish) the flesh tones are on the yellow side. This time, Bell used Ektachrome Daylight Type film at its normal rating of ASA 32; exposure was 1/25 second at *f*/2. The camera for both shots was a Leica III-f with an 85-mm long-focus lens.

Hazy day: John J. Ross took the picture of a woman with a string of balloons passing by the Arch of Triumph in Paris. The day was sunny, but a thick haze hung near the ground. It had the effect of subduing the bright colors of the balloons, and suppressing all color in more distant parts of the picture; the background looks as though it were shot on black-and-white film. Ross used Daylight Kodachrome at 1/50 sec, *f*/4.

Moonlight: Walter Benser, a German amateur who recently toured the U. S. lecturing on color photography, made the fine moonlight picture on the following spread. He used Daylight Agfacolor film because of the warm, brownish tone it imparts to night scenes. The picture was made at Moerren, Switzerland, at 9 p.m., with a Leica M-3 and wide-angle 35-mm lens. Benser used a time exposure of 6 minutes, and aperture of *f*/4.5.

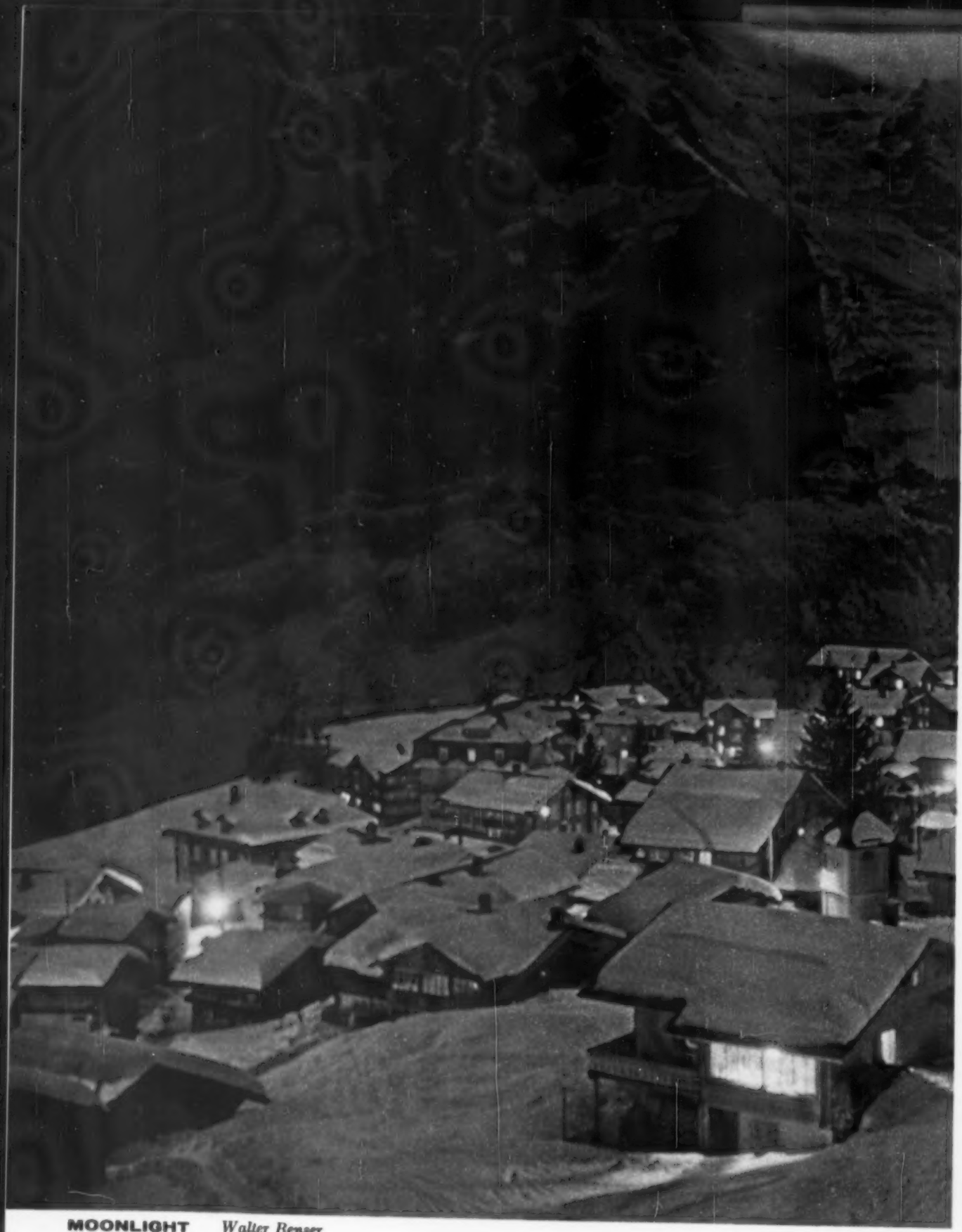
See following spread →

WRONG FILM *John J. S. Shrader*

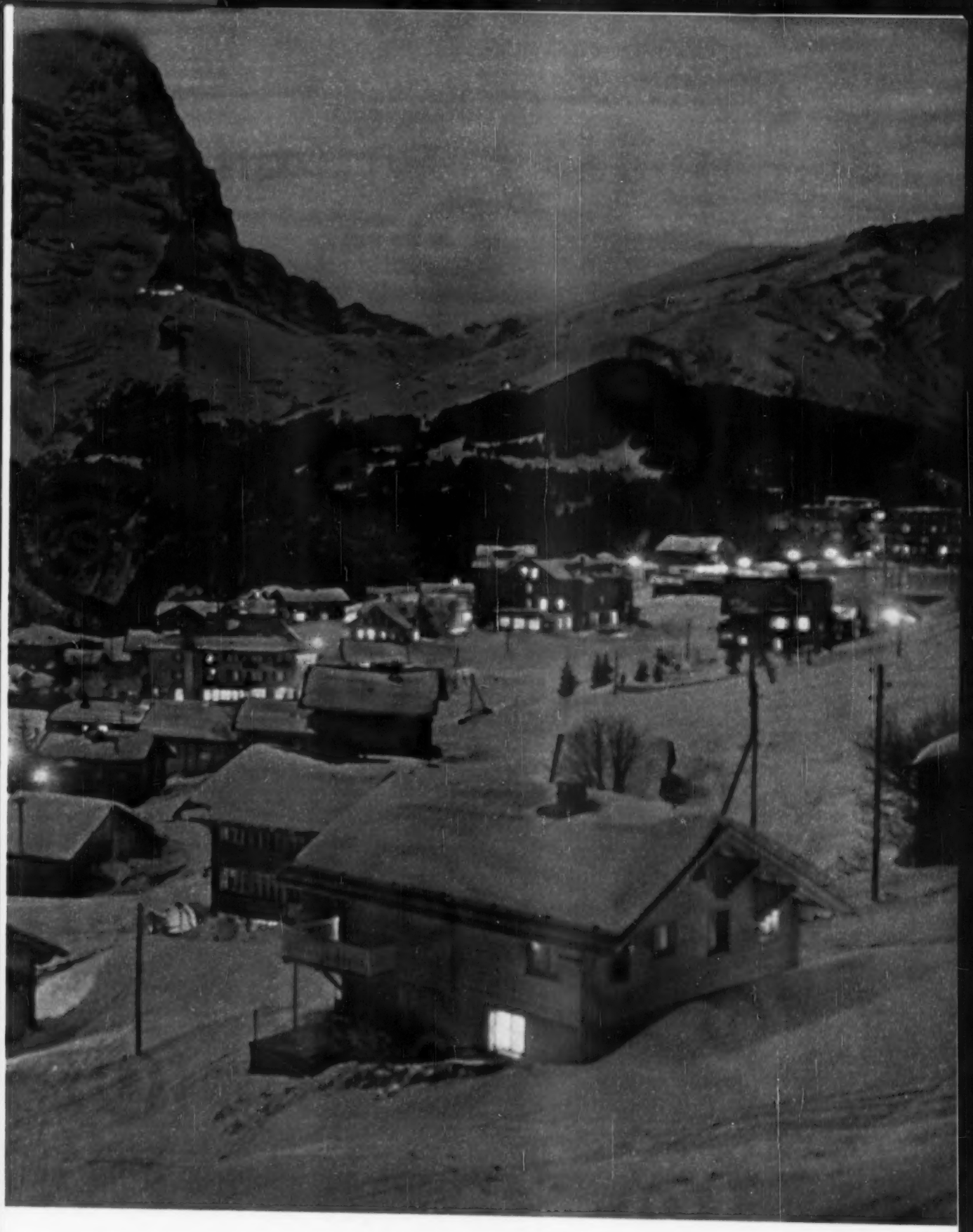
FORCED DEVELOPMENT *Hugh Bell*

LATE SUN *Hugh Bell*

HAZY DAY *John G. Ross*

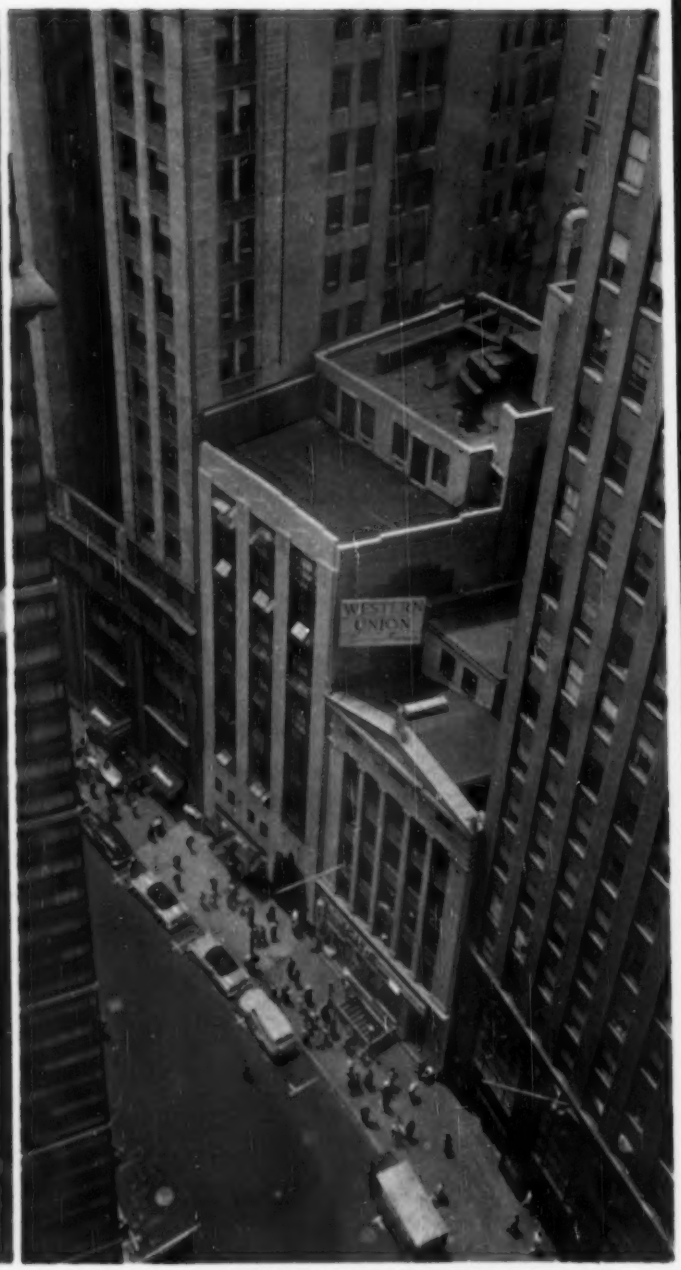


MOONLIGHT *Walter Benser*



Sometimes color improves

POPULAR PHOTOGRAPHY International Picture Contest Winner



POPULAR PHOTOGRAPHY International Picture Contest Winner

WHAT a shot this would make in color!" Perhaps you've said these words yourself when looking at a black-and-white print. Often, it's true: the addition of color can dramatically improve a picture, but this is not necessarily so. Inexperienced photographers, intoxicated by the ease and simplicity of taking color pictures, are sometimes prone to shoot indiscriminately, whether the subject is a suitable one for color or not. What color can do, and what it cannot, are graphically illustrated above. The autumn leaves in a woodland pool, by John J. S. Shrader, make an ideal subject for a color photograph, but are dull and meaningless when translated into black-and-white, opposite page. Shrad-

a picture—sometimes not

er's purpose was "to capture the serenity and simplicity of the natural still life" he discovered while walking through October woods in Pennsylvania. He recorded the delicate colors and soft lighting on Daylight Kodachrome with a Kodak 35 camera and an exposure of 1/25 second at f/3.5. On the other hand, Amy M. Walker's dizzy high-angle view of Wall Street is an effective picture regardless of the color. Although it is interesting when reproduced in full color, it loses little or nothing when reproduced in black-and-white on this page. It is the angle, composition, and lighting, not the rather monochromatic color, which makes this picture. Miss Walker used Kodachrome and a Leica.—▶

HUMAN

WHY did you stop and look at these pictures? Was it a special technique used that caught your eye? Or was it just the subject matter? More likely it was the subject matter.

Human-interest subjects and situations generally are strong enough to provide their own impact independently of the photographic technique employed by the photographer. Such subjects can be humorous, dramatic, tragic, and generally play upon basic human emotions.

On these pages are two pictures with high human-interest value. The photograph of the grandmother removing a hook from a fish is not a technical achievement but it is a good picture. News photographer Bob Quittner of Santa Barbara, Calif., could have made the shot in several different ways but he chose to use flash off his Rolleiflex camera to insure the extra contrast needed for newspaper reproduction. His technique was completely secondary when we examine his final results.

The surprised deer with its ears cocked at a ten-minutes-of-three angle, and its eyes staring right at you, outdoes Walt Disney's cartoons in expression. Photographer Pete Turner of Rochester, N. Y., caught this peak action with his Rolleiflex while visiting New York's Adirondacks.

Good, strong subject matter does not require superb photographic technique. It alone can make a picture stand up on its own and get attention.—▶

INTEREST-

subject matter alone can make a good photograph

What makes a good portrait?

A good portrait is more than a mere likeness of a person. It is a comment, an interpretation, a description, perhaps a revelation, made with a camera in the hands of a sensitive photographer. The camera used may be large or small, the lens fast or slow, the exposure made by flash, flood, spot, or available light. The technique may be perfect, the composition stunning, but if the photographer's eye be not searching, if he lacks insight and understanding, he will have little more than a document of a face for his pains. . . . Certainly there is no formula for a good portrait as the examples by four famous photographers on this and the following spread dramatically show. Each has his own approach. Karsh nearly always uses the hands as part of the composition, Newman relates the subject to a background symbolic of his profession, Halsman works probingly close, while Roth shoots candidly by available light. They are all wonderful portraits.

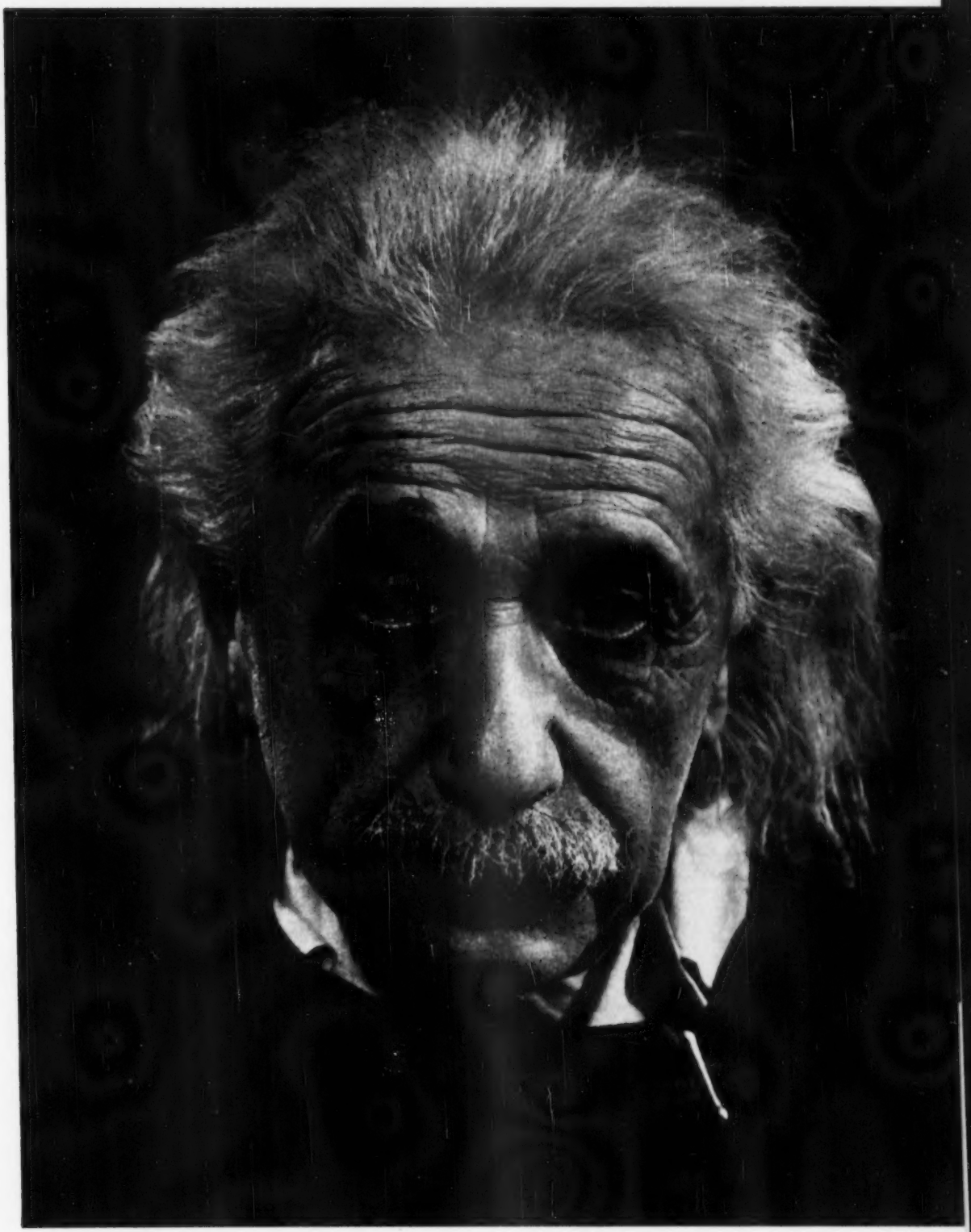
SANFORD H. ROTH approaches portraiture with a 35-mm camera, which he uses in true candid fashion. Here he caught the French painter Georges Braque in an arresting moment during conversation in his Paris studio. Roth always shoots by available light; his work is marked by realism, spontaneity, and unusual composition.

KARSH, who probably has photographed more world celebrities than any other photographer of our time, composes carefully on the groundglass of his 8x10 studio camera. The hands invariably are used as important elements in the strong composition. This portrait of Pablo Casals was made with two speedlight units, the aperture set at f/4.5.

© Karsh, Ottawa

Pictures continued

ARNOLD NEWMAN's celebrities are generally photographed against backgrounds that represent or symbolize their professions. Newman's portraits (he was once a painter) are distinguished by their unusual composition. This was one of a series he made for the *New York Times* and portrays that newspaper's drama critic against a lighted theater curtain. Two Dinky Inkie baby spotlights were used on Brooks Atkinson, and the Goerz Dagor wide-angle lens was opened wide enough to throw the stage background out of focus. Newman used a 4x5 Meridian camera mounted on a tripod.

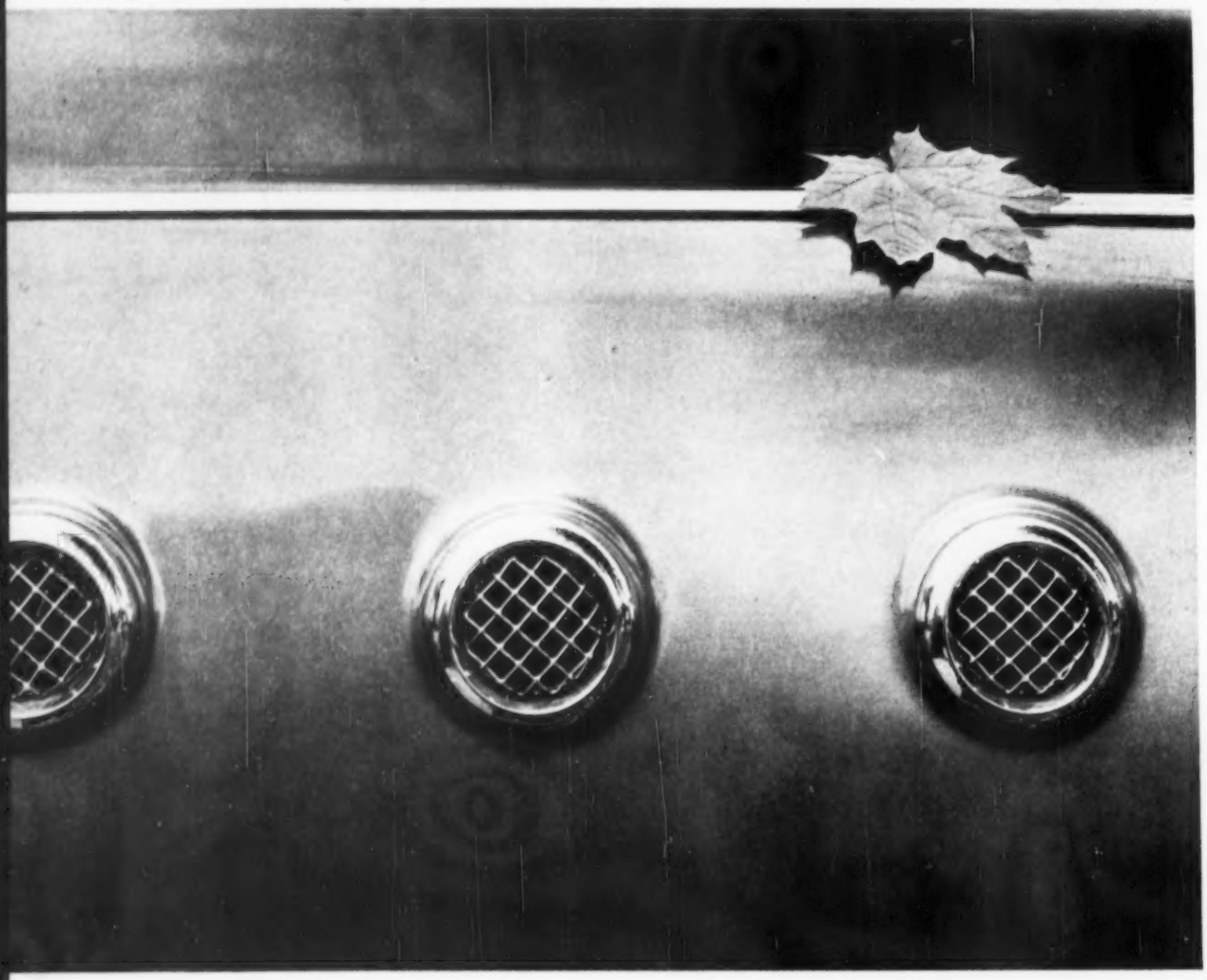


PHILIPPE HALSMAN's portrait of the late Albert Einstein is a fine example of this photographer's distinguished work. Here, as he usually does, Halsman worked close and his sharply probing lens caught an exact instant when something of Einstein's greatness stood revealed. The portrait was made in the great physicist's Princeton study by the light of 3 No. 2 photoflood lamps in reflectors. The 210-mm Bausch & Lomb f/4.5 Tessar lens fitted to the 4x5 Halsman-Fairchild twin-lens reflex camera was set at f/11, the shutter at 1/10. Halsman usually achieves full scale negatives.

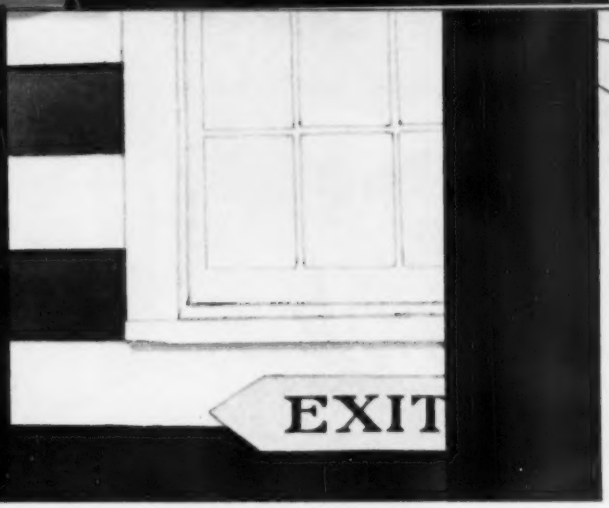
ABSTRACTIONS-

they emphasize design

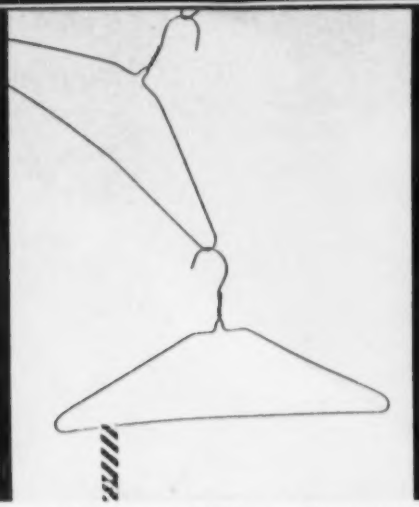
Here Lettau was struck by the single fallen leaf resting on a car hood. The exposure was for ½ second at f/22. Rolleiflex.



 Pictures by EDWARD LETTAU



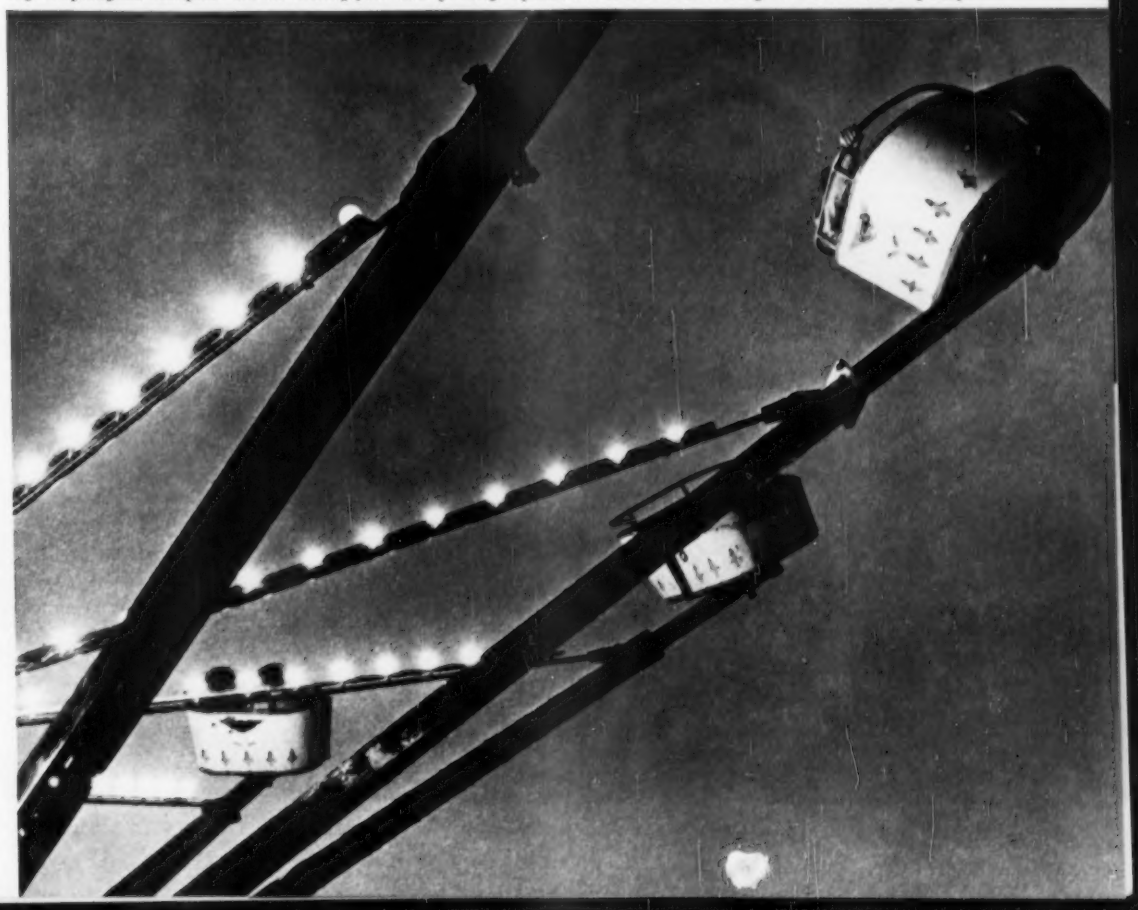
Exit sign and painted clapboards make a stark design.



Three coat hangers and tie form a linear pattern.

Some photographs are good, not because they realistically portray a person, place, or object, but because they create a design or pattern from almost unrecognizable close-up details. The four pictures reproduced here, by Edward Lettau, are photographic "abstractions" of this type. A purist might object to using the word abstraction as applied to a photograph, which of necessity is a representation of a real object (except for light-grams and other special trickery). However, pictures like these are abstractions in the sense that things are recorded not for themselves but for the visual designs they produce. Says Lettau: "Pattern photography interests me largely because the subject forms a pleasant design to see and enjoy. It has no complex or esoteric meaning to me. However, the subject may arouse a thought quite detached from the 'enjoyable design' aspect. In the composition of the fallen leaf on the automobile, I am reminded of man opposing nature. The coat hangers with the striped tie seems humorous."—

Light-spangled octopus ride at county fair was photographed in semi-silhouette against the evening sky.



Robert H. Miller, from POPULAR PHOTOGRAPHY International Picture Contest.

HOW TO SHOOT a broad-jump: Robert H. Miller, of Cedarburg, Wis., employed standard press-photographer's technique for the picture above. He used a Speed Graphic and electronic flash, shooting at f/16 on Super Panchro-Press Type B film. Strong shadows show how speedlight was placed high over the jumper's shoulder. Strain and tension in the face and figure are frozen into this split-second image. For contrast, study David Moore's "fluid motion" shot of the same kind of athlete, on facing page. Moore used a Rolleiflex and HP-3 film, exposed at 1/10 second, f/22; an orange filter was needed to cut down light intensity. He shot about 24 pictures of the same event; most of them were too blurred for recognition of the subject. This one is a powerful image of the figure in motion. The picture of the walking race, at left, was the only slow-motion shot Moore made on a sports assignment for the *Observer*; it shows how practice and skill (rather than just luck) get good results. A Rolleiflex was used, at 1/10 second, f/16, with an orange filter to reduce light. A diagram at the end of this article shows how Moore pans through 90 degrees to pick up the action and "follow through."

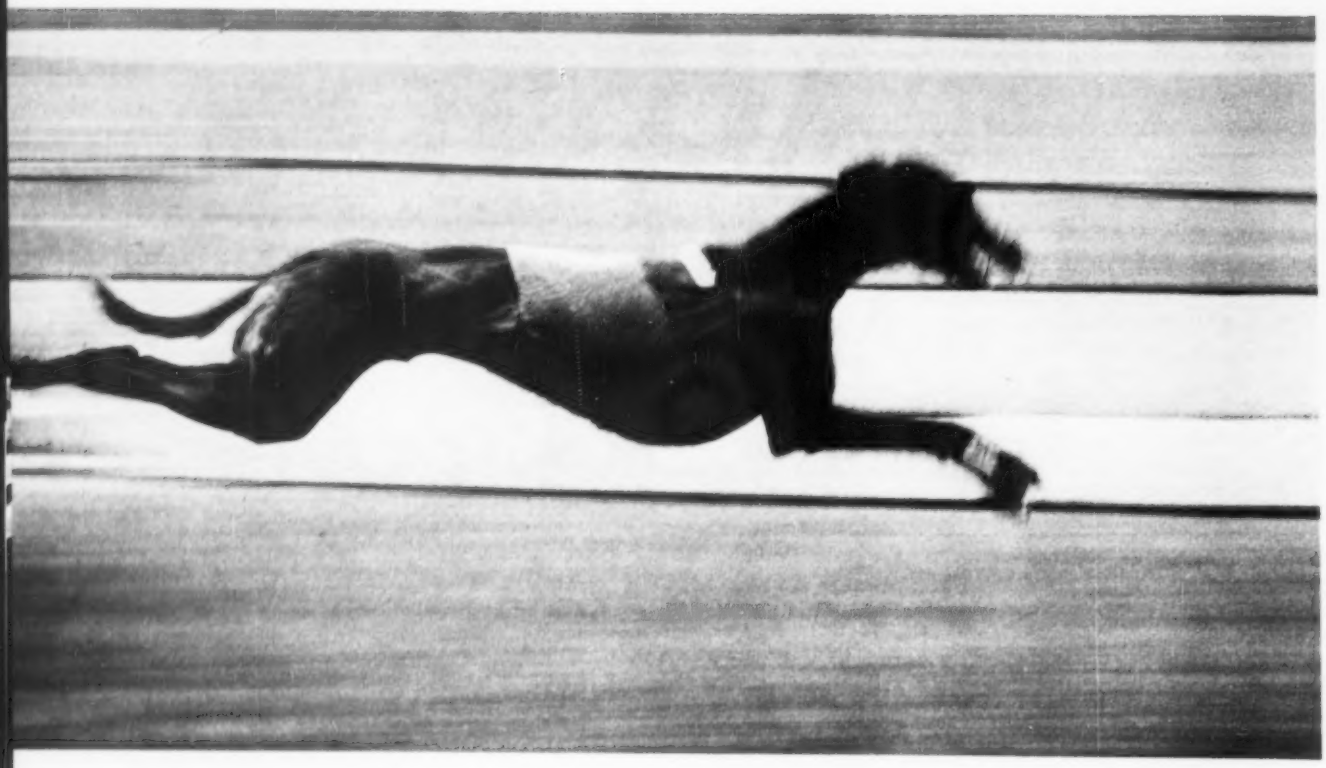
ACTION-

frozen or fluid, it adds excitement

A picture can be good because there is action in it—frozen action or fluid action, conveying a feeling of suspense or a thrill of movement to the viewer. The camera is perfectly suited to interpreting motion in either way. Flash and a fast shutter can arrest fast action at any point, permitting the eye to study the detail and the strain of the instant. A slow shutter, in capable hands, can create a powerful sense of motion, matching what the eye sees as it follows a moving object. On these four pages are fine examples of both ways of working with action: Robert Miller's electronic-flash shot of a broad-jumper, and British photojournalist David Moore's five remarkable slow-shutter shots, one of which is a striking parallel to Miller's. Which is the best way to photograph a broad-jumper? This is a question for endless discussion, and no answer can satisfy everybody. One is more satisfying because (*Continued on page* 112)

Photographs by DAVID MOORE

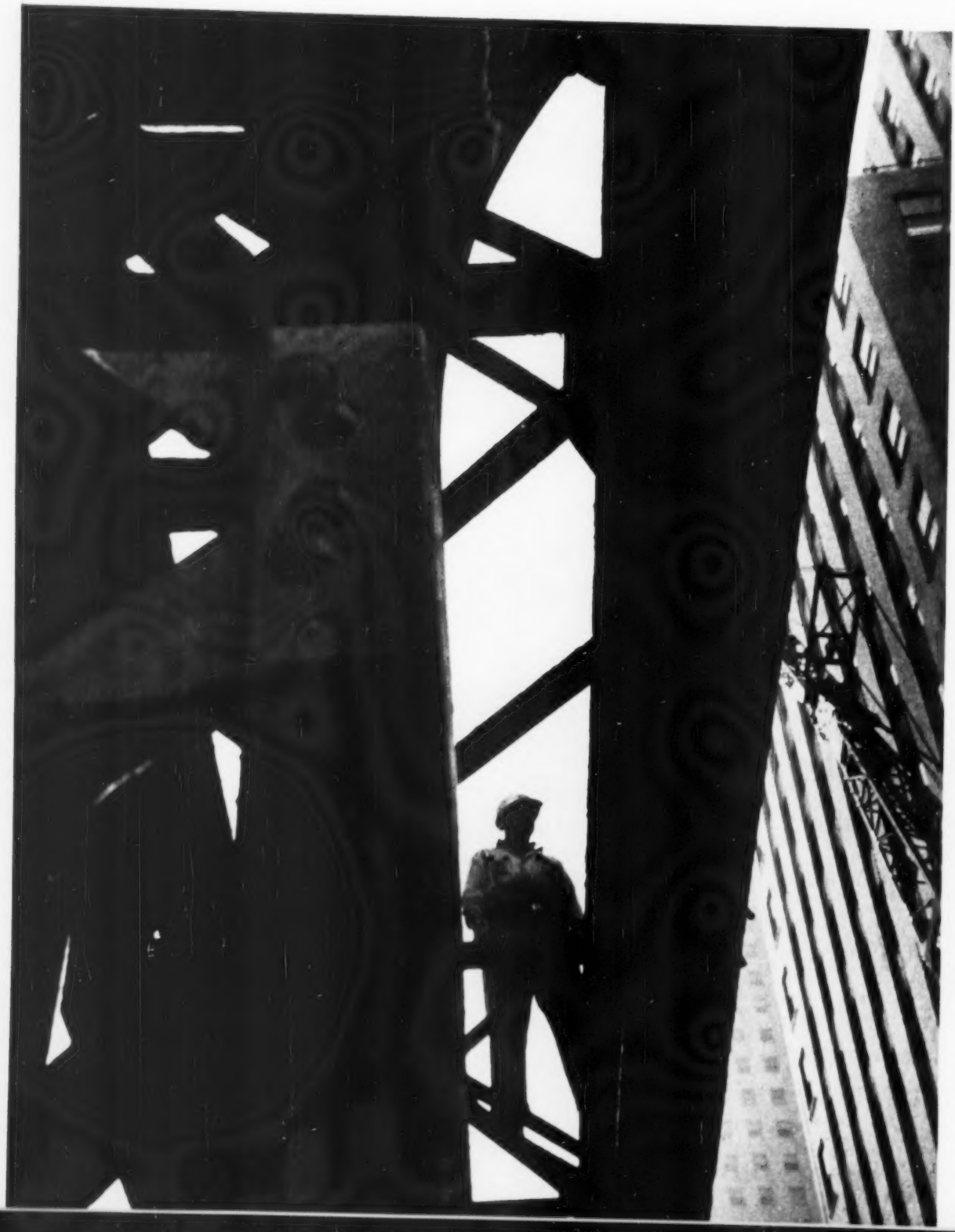
continued



GREYHOUND, glider, horses—all interpreted in motion by David Moore's camera-panning technique. At the dog-jumping competition, he made just two "fluid-motion" exposures at the end of a two-hour working session; this was the only successful one. Here he chose to use a shutter speed of 1/25 second because action was so fast and quite close to the camera; this eliminated the need for a filter which he sometimes used to cut down light. Aperture was f/16, on Ilford HP-3 film. The glider shot Moore considers one of the most remarkable he has made with this technique. His panning movement corresponded so closely with that of the plane that the pilot's head is clearly visible, and the identifying numbers are sharp. With the Rolleiflex, he shot at 1/10 second, f/22, using the orange filter and HP-3 film. The glider was the Austrian entry in the World Gliding Championships at Great Hucklow, England. The horse-race shot was made on assignment for the *Observer* at Epsom track. In this case the magazine asked for a blurred-action picture. Moore made his exposure just after the start of the race, while the horses were still in line. Shooting at an angle like this makes the technique more difficult, but small aperture eliminates all concern about depth of field. The camera was set again at 1/10 second, f/22, and the orange filter was used. Of eight shots, three were good.

OE-0268
43

IT'S NOT THE CAMERA,



IT'S NOT THE CAMERA continued

IT'S THE PHOTOGRAPHER *that makes a good picture. To prove the point, here are two assignments shot by professionals with box cameras*

Ed Feingersh photographs construction workers

It's the secret conviction of many an amateur that the only reason he doesn't take professional-calibre pictures is that he can't afford an expensive camera. To explode this persistent myth and prove the truth of the ancient photographic saying that it's the man, not the camera, that makes good pictures, POPULAR PHOTOGRAPHY assigned professionals Ed Feingersh and Don Briggs to shoot pictures with simple box cameras. The high quality of the results, reproduced here and on the following spread, amazed even the (*Continued on page* 82)

Turn page for another box-camera assignment

Tri-X film permitted him to shoot candid action pictures like this in the deep shade. He developed his 620 rolls in Promicrol for 12-14 minutes.

← Silhouetted figure of construction worker was recorded by Feingersh with a $13 focusing box camera. Fixed exposure was about 1/30 sec at f/16.

Don Briggs photographs a nude with a box camera

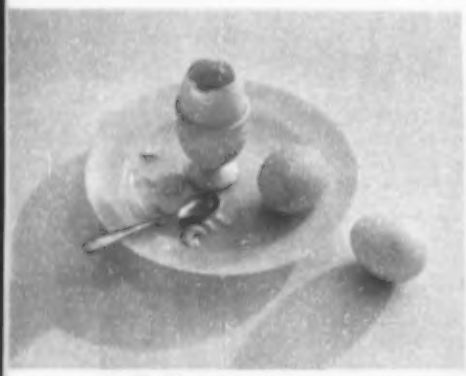
Our assignment to studio-photographer Don Briggs was equally simple: choose a box camera and shoot a nude in color and black-and-white. His interesting results, almost indistinguishable from comparison shots made with an expensive adjustable camera, are shown here. Briggs picked a $15 reflex-type roll-film camera with a range of three lens openings (*f*/8, *f*/11, and *f*/16) and two shutter settings, "I" (about 1/30 second) and "L," for prolonged exposures. For the black-and-white shots he loaded his camera with Tri-X rated at a normal ASA 200, and gave an exposure of *f*/8 with the shutter at "I." The mixed illumina- (*Continued on page* 92)

Briggs used Tri-X film in a $15 reflex-type box camera and an exposure of "instantaneous" (about 1/30 second) at f/8 for the black-and-white photo reproduced at left. For the color shots he loaded his camera with high-speed Daylight Ektachrome and exposed for one to three seconds at f/16. In both cases, the illumination was a combination of daylight from a skylight and two bounce photofloods. No filter was employed.

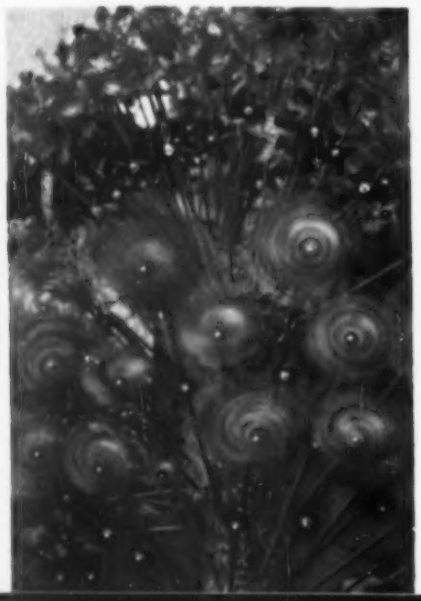
Frank Dool, *radio operator, Ottawa, Canada*

Why these reader pictures are good

Here are four color photographs by amateurs, about as different as they could be in subject matter, treatment, and effect. Each is a superior example of its own type. What are the elusive qualities that make them good? Two things, at least, are true of all four: the subject matter is unusual (if not exotic), and they benefit enormously from being in color. In addition, each has a special quality which distinguishes it. Here are four words to match the pictures: *organization, subtlety, excitement, appeal.* **Frank Dool** photographed an Eskimo mother and child in their igloo at Baker Lake in Canada's Northwest Territory. He went to extremes to preserve the natural light effect in the snow house; this is actually a 15-second time exposure, and the only light came through a small window made of thin ice. Dool's camera was an Argus C-2, his film Kodachrome Daylight Type, and aperture f/6.3. **Dr. K. H. Wu** was impressed by the subtle and interesting tone values of the eggs, cup, plate, and knife, and made some high-key black-and-white shots first, then some color, with three-quarter backlight from a setting sun. Wu's camera was an Exakta, his film Kodachrome, and his exposure 1/25 second at f/5.6. **Harvey C. Friedentag** found the pinwheels at a festival in Tokyo, and waited for a gust of wind, then shot with his Leica at 1/25 second, f/11. The shutter speed was slow enough to register the motion blur that adds excitement. He used Kodachrome Daylight Type film and a UV filter. **Stanley S. Walters** got his picture in Tokyo too. The human appeal of the child is complemented by the bright splash of color. Walters used a Contax, 85-mm Nikkor lens, Kodachrome, a UV filter, exposure 1/250 second, f/2.—



K. H. Wu, *physician, Hong Kong*



Harvey C. Friedentag, *Air Force photographer, New York City*

Stanley S. Walters, *planning assistant, West Hyattsville, Md.*

Pictures the

ROSEMARY KENDRICK, First Prize, Animal Division, Boys' Life *Photo Contest*
LYMAN K. STUART, First Prize, PSA-
Life *Photo Essay Contest* →

Stanley S. Walters, *planning assistant, West Hyattsville, Md.*

←
*CARSTEN W. JOHNSON, Third Prize, PSA-*Life *Photo Contest*
ALEXANDER BIRCH, JR., First Prize, Pearl Harbor Naval Shipyard Log *Contest*

judges liked-

a roundup of recent prize-winners

EVERY year sees more big photographic competitions, with top prize awards sometimes equaling a whole year's earnings for a successful working professional. POPULAR PHOTOGRAPHY'S own contest, results of which were published in the December issue, leads all the rest in total value of prizes. But 1955's biggest lump of loot was the $5,000 top prize in the photo-essay contest sponsored jointly by *Life* and the Photographic Society of America. This plum was plucked by businessman Lyman K. Stuart, one of whose pictures we reproduce here.

Carsten W. Johnson, a dentist in Pleasantville, N. Y., won third prize of $1,500 in the PSA-*Life* contest with a set of moonlight pictures, one of which appears on these pages. It was made in a farmyard in Lanesboro, Mass., on a cold winter night. Johnson used a Leica with a wide-angle 35-mm Elmar lens, and Kodachrome Type A film. He used a flashbulb to light up the buildings during the five-minute exposure, which he made at *f*/3.5. He points out that during a time exposure the outline of the moon is softened, and the effect is of a spot of diffused brightness.

Rosemary Kendrick, a Utica, N. Y. schoolgirl, took first place in the animal division of the *Boys' Life* Photo Contest with the shot of a running horse. The picture was made at a riding stable in her home town, with a Speed Graphic camera, Tri-X film, and exposure of 1/250 second at *f*/16. This contest was open to all under 19 years of age; Rosemary was 15 when she entered. Her prize was an Argus C4 camera.

Lyman K. Stuart is a nurseryman in Newark, N. Y., and treasurer of the Gardening Council. He had never won any prize with his pictures until he took the $5,000 award in the PSA-*Life* competition. His entry was a set of color shots of birds (*Continued on page* 117)

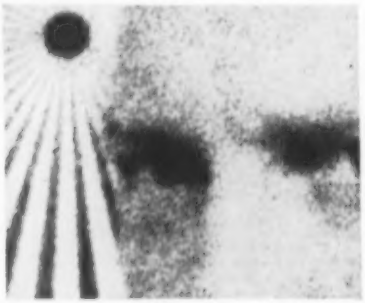
The Kodak BULLETIN

Hypo bouncers &

—and how to boost millimeters up to photomurals . . . color trends in fine-camera cases and other leather goods . . . the real difference in the wonderful world of stereo, and a camera to explore it . . . community-service jobs for your camera . . . flash power from a wisely shaped 3-inch reflector . . . and the tank that loads by day.

How far is up?

Recently we printed this picture, a 100× blowup from part of a 35mm negative



made on our new micro-grain, super-sharp Kodak Panatomic-X Film (which also comes in roll-film sizes). Sorry we can't show you the whole thing; a 100× enlargement of the entire 1 x 1½-inch negative would be about 8 by 12 feet!

Some people, allergic to long division, have come back and asked us: "Just how big is the part of the negative that portrays this suspicious-looking 100× character with the focusing chart background?"

Answer: about ½ by ⅓ mm, or about the size of the period on this sentence. A section 1mm square enlarged to the same degree would make a print about 4 inches square. A section 2 by 2½ mm would make an 8 x 10 print at 100×. And (owing to diffraction and limited field depth at 100×) an enlarger wouldn't bring out as much grain as we show here. We used a microscope for this blowup.

Better go get some Panatomic-X. Its high acutance and ultra-thin emulsion will give you the sharpest pictures you ever took. Indexes, 25° daylight, 20 tungsten (and you'll probably use higher meter settings, depending on your equipment and preferences). Tonal quality, superb. Best developer, old reliable Kodak D-76, for only 7 minutes!

Potent 3-incher

Some added notes on our powerful $9.95 Kodak Super-M (for midget) Flasholder (with built-in B-C, and mirror-bright 3-inch Kodak *Lumaclad* Reflector):

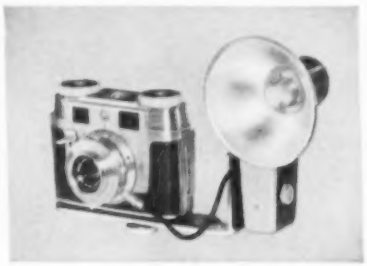
▶ An ultra-midget M-2 flash bulb in the Super-M puts out as much light as an SF or SM bulb in *five*-inch reflector!

▶ In the Super-M, the tiny M-2 and the larger No. 5 and 25 deliver the same light output. Guide numbers at 1/25 second are:

Kodak Plus-X Film	85
Kodak Verichrome Pan	85
Kodak Panatomic-X	50
Kodak Tri-X	140
Kodachrome, Type F*	40
Kodacolor	55
Kodak Ektachrome, Type F*	50

*No. 81 Filter with M-2; none with 5 or 25.

This trim-looking, efficient unit is just the right size for hand cameras; has inter-



changeable tips for both bayonet and continental flashposts. Make it a point to investigate one at your Kodak dealer's. You'll want it on sight. (***Incidentally, there's a sliding flash calculator right on the back of the battery case.***)

Cellos and stereos

A great musician knows more than one instrument. The top-notch cellist, for instance, may devote a great deal of time to the piano. It makes a difference.

We think there's a lesson here for the serious photographer who makes excellent prints and color transparencies, but has not yet tried stereo.

Stereo brings you a new world. Deep pictures you can almost walk into. No "surface" between you and the scene. In effect, a complete three-dimensional reconstruction—a degree of realism you can't get in any other way, except by going back to the place where you took the picture.

To explore this wonderful world of complete three-dimensional realism, we suggest the Kodak Stereo Camera.

We recommend it for two reasons: 1) because stereo is a new way of life, photographically speaking, and 2) it is the best stereo value on the market. Priced sensibly at $84.50, it gives you all the essentials for high-quality stereo, without excess frills that would jack the price higher.

Your $84.50 gets you twin Kodak Anaston *f*/3.5 Lenses, shutter speeds to 1/200 second, a quick-action exposure computer which is linked directly to the lenses and the shutter, rapid zone focusing, no-parallax viewfinding, built-in flash synch, automatic film count, easy rapid loading, double-exposure prevention (with a release for intentional double-exposure when you choose). To guard against sidewise tilting (bad business in stereo) we build a spirit level right into the viewfinder. The lenses are deeply recessed, so you save the price of two lens shades. In addition, we include a screw-in filter-retaining ring for each lens, which saves you a couple more bucks. The film pressure plates are mirror-smooth, and little springs below

the film keep it in perfect horizontal alignment. The lenses are interlinked and focus by rotating on precision threads, in perfect co-ordination. The camera hefts at a comfortable 25 ounces, and is as pretty a piece of styling as ever you've seen.

So, swing open your Kodak dealer's doors, and demand that he show you this two-eyed beauty that sees things exactly as you do. You'll like it as well as we, and it will open your eyes to a wonderful new world.

Ektar gaging

Ektar gaging

Among the many mechanical products Kodak makes are some impressive gadgets called Kodak Contour Projectors. These are industrial tools, used for precision gaging of small (and not-so-small) machine parts. They accomplish this by

projecting a greatly magnified image of the part to be gaged on a viewing screen so you can spot differences as small as 1/10,000 of an inch!

Naturally, since precision is the idea, we equip these Contour Projectors with Kodak Ektar Lenses—just as we equip our precision cameras, the Kodak Signet 35 and Kodak Chevron, with Ektars.

The point is that a precision optical tool—whether it's an optical gage for industry or a top-class camera for you—should have precision *all the way through.* That's why we began making Kodak Ektar Lenses in the first place. And it's why the $75 Signet and $195 Chevron are worth more than they actually cost you. Try either one—or both—and you'll see.

Quick and timely

▶ If what you want is a set of filters for general pictorial black-and-white work, try the new inexpensive solid-optical-glass Kodak Pictorial Filters. For such work, they are just as serviceable as our standard Kodak Wratten Filters, which are precision gelatin-in-glass. The Pictorial Filters, red, yellow, and green, cost $1.50 each in Series IV; $1.75 in Series V; $2 in Series VI.

▶ We remind you again—for processing 35mm Kodak Ektachrome Film, there's no sweeter unit than a Kodak Day-Load Tank. At your Kodak dealer's, $9.95. If he's temporarily out of them, have him place an order for you.

Trends in fine leather

We consider a camera carrying case to be much the same as a piece of fine luggage. In the last few years there's been a trend towards more reddish-brown in fine leather goods. If you'll compare this year's Kodak Carrying Cases with those of several years ago, you'll find we've changed the color to keep up with the trend.

All this makes a carrying case up to date. But it doesn't necessarily make it any better. We do that the same way we always have—by buying only the best vegetable-tanned leather available, top grain and full grain. We test the daylights out of each shipment . . . reject about

30%. We use the best heavy-duty, long-staple cotton thread we can find, and select hardware that will serve as long as the case lasts. We don't believe anybody makes a better case.

If you don't have a field case for your camera, or your old one is getting worn out, we suggest you take a look at the modern Kodak Carrying Cases at your Kodak dealer's. And look at them closely, for you'll see some really handsome, rugged leather work, in the most fashionable color.

Super timesaver

Some of the longest minutes are those when you stand around on one foot waiting for the film to finish washing so you can dry it so you can start making prints. Okay, here are five gallons of speed-up and safety for only 80 cents.

The stuff is called Kodak Hypo Clearing Agent. You use it for 1 to 2 minutes between the hypo and the wash water, and you then need to wash the film only

five minutes in running water . . . instead of the usual twenty minutes or longer!

Economical? The 80-cent package of clearing agent makes 5 gallons. Give your film a 30-second rinse in water after fixing, then put it in the clearing agent, and each 4-cent quart will shake the hypo out of 3000 to 4000 square inches of film. (That would be at least a couple of thousand miniature-camera shots.)

Then you use running water (flowing fast enough to make one complete change in the 5 minutes) and you're all through. See your dealer, with 80 cents, tomorrow.

(*Incidentally, for paper prints, you can cut the regular wash time in half by using a 2 percent solution of Kodalk Balanced Alkali after fixing and before washing. Your dealer has this alkali, too.*)

Fun for work

There's nothing quite so satisfying as finding a practical use for your hobby. One good way to do this is in making slides and filmstrips for all sorts of club, church, and community meetings where you want to get some ideas across in a way that sticks. Some fellows we know are even making educational filmstrips and slides as part of their P. T. A. activities.

You can get a lot of helpful information on preparing such material, including copying, printing and the making of duplicate color transparencies, in a Kodak booklet "Photographic Production of Slides and Filmstrips." 50¢ at your Kodak dealer's.

(If you're looking for a projector that shows both slides and filmstrips, take a look at the Kodaslide Signet 500 Projector with a filmstrip adapter.)

Prices include Federal Tax where applicable and are subject to change without notice.

Kodak

EASTMAN KODAK COMPANY, Rochester 4, N. Y.

REPORT ON THE NEW PLUS-X

Improved version of Kodak's general-purpose film combines speed with quality

By BOB SCHWALBERG

WITH recent film news centering largely upon super high-speed films on one hand and super-fine-grain high-resolution films on the other, the recent revamping of Kodak Plus-X presents a problem to the photographic reporter. This new emulsion, which is rated at ASA 80 daylight and 64 tungsten (instead of the previous ASA 50 and 40 ratings), yields neither the most speed nor the finest grain or highest resolution. It is, however, probably the most generally useful film ever offered the 35-mm and roll-film user.

Treated with care in exposure and development the new Plus-X can invade the thin-film territory and produce negatives with grain and resolution permitting huge enlargements from 35-mm. And, in conjunction with soft-working, high-energy fine-grain developers like Microphen and Promicrol, this film becomes a first-rate available-light performer - whose optimum effective film-speed ratings are only one stop less than those used with the speed champ, Tri-X.

The new emulsion differs from its famous forbear in three important respects: speed, contrast, and latitude.

Plux-X is now approximately one half stop, or 50 percent, faster than before. Whether old time Plus-X users will want to use the same effective film-speed ratings as before for the new emulsion, or use higher effective film-speed ratings with or without changes in processing, is a matter for personal interpretation which will, in most cases, be settled on the basis of contrast requirements.

The contrast characteristics of this new film are most interesting. With normal development the new Plus-X has somewhat higher contrast in outdoor sunlight situations. But indoors, with the same development used for available-light, the contrast of the new emulsion is somewhat softer and resembles nothing so much as the old, discontinued Super-XX emulsions. The set of comparison prints accompanying this article illustrate both factors very neatly. If you pay attention only to the girl at the desk and the various foreground objects in front of her it is obvious that the new film is flatter than the old one. But, now notice the difference in density between the two emulsions' versions of the building seen through the window.

In terms of over-all highlight-blocking contrast, the interesting thing is that the new Plus-X resists blocking to a much greater degree than the old emulsion even when exposed and developed for maximum contrast by underexposing and overdeveloping. As a matter of fact, we are prepared to state that the latitude toward variations in exposure and development of the new Plus-X are the most exceptional that we've ever encountered in any film test we've ever made. Differences in development which cause perceptible, and frequently disastrous, increases in contrast and grain with the previous emulsion have little or no effect upon the new emulsion except that the over-all density increases somewhat.

Our tests to date have been confined to Kodak Microdol, D-76, D-23, Clayton P-60, and the British imports Promicrol and Microphen. The accompanying charts summarize our findings in terms of effective film-speed indexes and development times for (*Continued on page* 80)

How the new Plus-X compares with the old

Old Plus-X rated at ASA 80. All test shots reproduced here were developed 12 minutes in D-76 at 68 F. Comparison pair above were both rated at ASA 80 for test purposes, and the illumination chosen was a combination of fluorescent and daylight.

New Plus-X rated at ASA 80. Higher speed of new film gives a brighter image and better shadow detail. However, tonal gradation is softer, and highlight areas do not block up excessively. Notice how much brighter the outside building is recorded here.

Latitude Test

The four pictures below demonstrate the tremendous latitude of the new Plus-X. All were developed for 12 minutes in D-76, but were exposed, from top to bottom, at ASA 160, 320, 640, and 1280. Shadows, middletones are much too dark in 1280 exposure (four stops low), but the 640 negatives (three stops low) is capable of producing a good print. Contrasty lighting also provided a good test of new film's ability to record a very wide tonal scale.

one stop underexposed

two stops underexposed

three stops underexposed

four stops underexposed

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NEW PLUS-X WITH DAYLIGHT

Developer	Effective Film Speed Rating (ASA)	Development Time, 68 F. (With Intermittent Agitation)
Microdol	80	11-13 min
D-76	125-160	10-12 min
D-23	125-160	12-13 min
P-60	80-100	10-12 min
Promicrol	125-160	7-10 min

NEW PLUS-X WITH TUNGSTEN AVAILABLE LIGHT

Developer	Effective Film Speed Rating (ASA)	Developing Time, 68 F. (With Intermittent Agitation)
D-23	160-200	12-13 min
D-76	200-250	12 min
Promicrol	320-400	12-14 min
Microphen	320-400	13-16 min

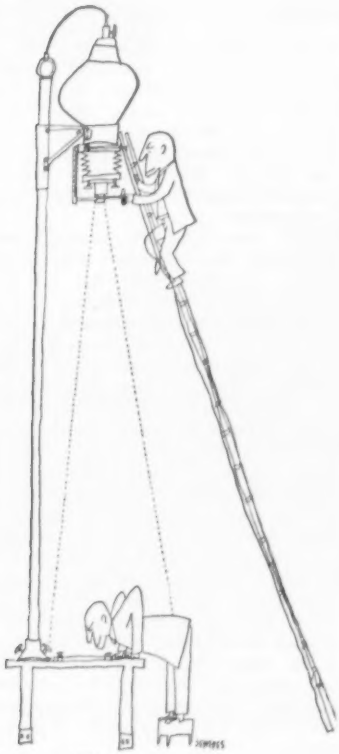
sunlight and available-light shooting. The indexes given are for use with ASA-calibrated exposure meters, our tests having been made with the Brockway Director incident-light meter.

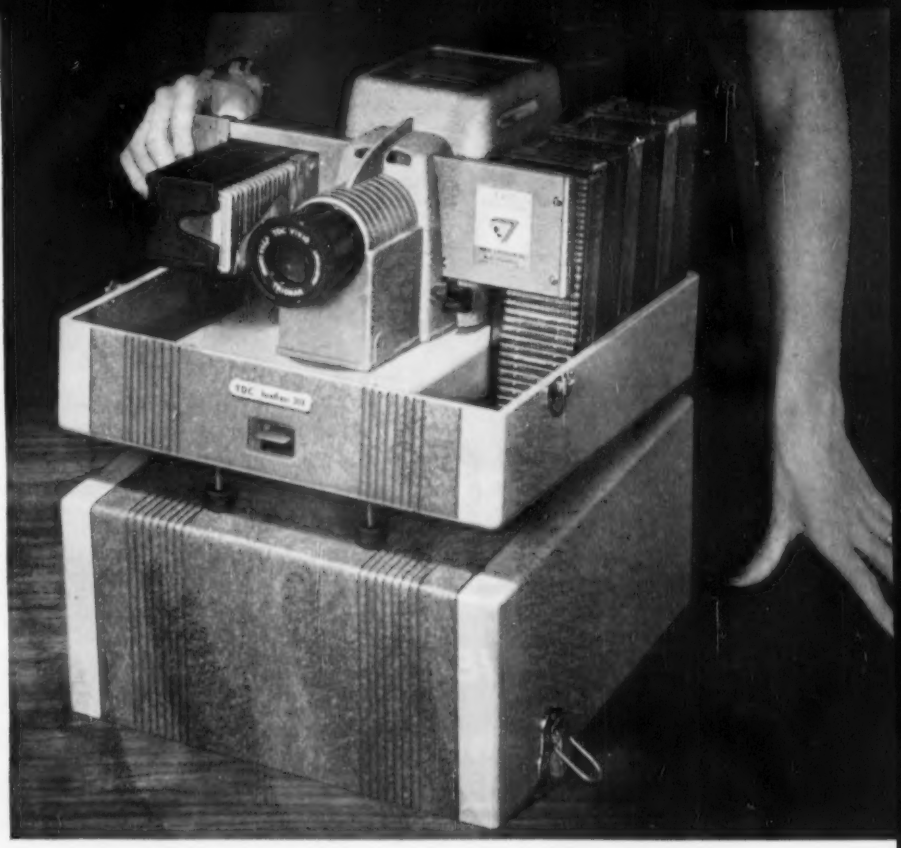
In some cases photographers may find that the available-light recommendations given will result in lower contrast than they normally prefer. The reason for this is quite simply that the new Plus-X packs a lot more density into the shadow areas than did its predecessor. Subject values which print as closed blacks on the old Plus-X will print as gray on the new emulsion. This is the same effect that has been noted in connection with Tri-X in available-light work. Although this greater ability to see into shadow areas and pick up detail and texture

results in much greater tonal fidelity, many photographers seem to prefer a rich black to this fidelity. The answer is then to give less exposure and increase development. How much less exposure and more development will vary with the developer used and the amount of contrast desired. However, in most cases a half stop less exposure coupled with some two or three minutes additional development time should turn the trick.

One note of caution in regard to processing: while Plus-X now has considerably greater latitude than ever before, and no more than normal care is needed in regard to accuracy of times and temperatures, one small item seems to be quite important. This is agitation. Our tests indicate that the quality obtained from casual, now-and-then agitation are noticeably inferior in terms of brilliance and separation within the less-exposed negative areas to results obtained with unvarying minute-by-minute agitation. Our practice is to give about four or five shakes every minute. Incidentally, this seems to help Tri-X as well.

Like all medium-speed fine-grain films, the new Plus-X does not produce the kinds of spectacular performances which we have learned to expect from the super-fine-grain or maximum-emulsion-speed specialist films that have been garnering headlines in the recent past. But this film does have one great "most." It is probably the "most" versatile film available today.—





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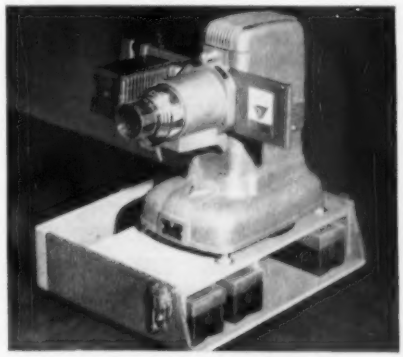

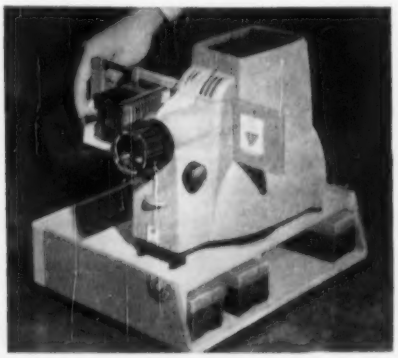

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How the low-angle shot on page 41 was made

Photographer Jean-Philippe Charbonnier placed heavy-duty glass on trestles and posed a ballet dancer on it. He lay on the ground and shot upward with a Rolleiflex.

It's the Photographer—Feingersh

(Continued from page 69)

editors who set up the project and the experienced photographers who took the pictures. Photojournalist Ed Feingersh, whose candid construction shots are shown here, chose an eye-level box camera. Strictly a 35-mm man, he preferred the directness of eye-level viewfinding. As shown in the small picture at the beginning of this article, he utilized an unorthodox—but effective—method of holding the camera steady with the aid of a neckstrap wrapped around one wrist and pulled taut. The combination of a rock-steady stance and a remarkably sharp lens for so inexpensive a camera produced 2¼x3¼ negatives of high enough quality to make crisp, clear 11x14 prints, two of which are reproduced with this article.

Ed's assignment was general: we told him to record any subject which interested him, so long as it gave him scope to exercise his photographic eye and a chance to shoot action. A construction project in midtown Manhattan met all these specifications.

Feingersh made his pictures under lighting conditions not usually recommended by box-camera makers: the sky was cloudy and the workmen were in deep shade without direct skylight falling on them. The box camera's fixed shutter speed and lens opening were designed to give proper exposure to medium-speed films in bright sunlight. Feingersh overcame this problem by applying standard available-light technique. He tried three types of film (Plus-X, Super-XX, and Tri-X) and developed them all in high-energy Promicrol for 14 minutes to boost the effective film speed. All three films produced negatives of adequate contrast and density.

With the exposure problem solved, Feingersh found himself able to shoot almost as freely with his $13 simple camera as he would with his usual precision miniature. This is not to say he is likely to choose a box camera for future magazine assignments! A quality camera with a fast lens and wide range of shutter speeds can get pictures where a box camera is useless, no matter how fast the film or how hot the developer. Then, too, technical quality is much more dependable with a better camera. And nobody wants to take unnecessary risks when his reputation and livelihood depend on getting good results. However, Ed's experience makes our point: a simple camera can be a creative instrument in the hands of a photographer with a trained eye and hair-trigger reflexes.

Ed, who now might be considered something of an authority on box-camera technique, has some interesting advice for prospective buyers and users of the humble box.

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3. The prizes will be awarded to the students whose photographs are judged best by the editors of POPULAR PHOTOGRAPHY. In case of ties, duplicate prizes will be awarded.

4. Black-and-white photographs only are eligible, and each contestant may submit no more than six prints. There are no restrictions as to subject matter, and unmounted prints of any size up to 11 x 14 are eligible.

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6. Entries will not be returned; non-qualifying prints will be destroyed immediately following announcement of the prize winners. The Contest Editor will not enter into correspondence of any kind regarding entries.

7. Prize winners will be announced in the July 1956 issue. Prize-winning prints and negatives including all reproduction and promotional rights, become the property of POPULAR PHOTOGRAPHY. Students winning prizes will be required to furnish original negatives before prizes are given, as well as model releases where necessary. All prize-winning negatives become the exclusive property of POPULAR PHOTOGRAPHY.

8. Address all entries to High School Contest Editor, POPULAR PHOTOGRAPHY, 366 Madison Avenue, New York 17, N. Y. Entries must be postmarked not later than midnight of January 31, 1956.

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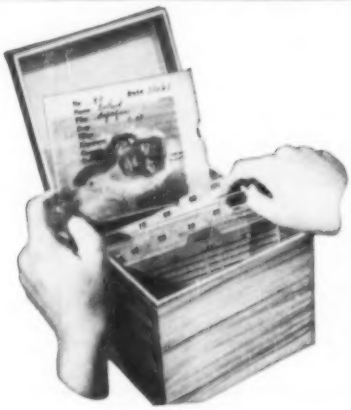

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1. *Familiarize yourself thoroughly with your camera.* A professional with a new camera takes considerable time and trouble to know his equipment intimately—how it loads, how it handles, how it shoots. He studies the controls, goes through the various camera operations, and makes dry runs until he can handle the camera with great skill and ease. An inexpensive box camera deserves equally serious attention if you really want to achieve superior pictures with it.

2. *Master the shutter release.* The shutter release lever or button is perhaps the single most important control in any simple camera. Remember, most fixed-exposure cameras have relatively slow shutters, somewhere between 1/25 and 1/50 second. It takes skill and practice to learn to hold a camera steady at such speeds, and to release the shutter without jarring. The soft, fuzzy images which plague so many novices are probably due more to camera motion than to an inferior lens, so learn to hold your camera steady. Don't jab, but gently *squeeze* the release. Learn how much slack you'll have to take up before the shutter is ready to trip. Attention to this one detail alone will help to improve your pictures.

3. *Choose the right angle with moving subjects.* Avoid extreme close-ups when trying to stop motion, and try to catch motion directly towards or away from the camera rather than at right angles to the camera axis.

4. *Choose a model with a viewfinder you like.* Thirty-five-millimeter expert Feingersh felt more at home with an eye-level finder. You may prefer a waist-level type. Whatever your choice, buy a camera with a bright, clear viewfinder. Learn to use it well, and make use of the entire negative area when shooting box-camera pictures. You are limited in the amount of cropping you can do because the smaller the negative area you blow up the poorer your enlargements will be. Most of Feingersh's box-camera prints were made from the full negative. Incidentally, he chose a camera which puts 8 2¼x3¼ negatives on 620 film because he likes this format and because it gives a larger negative. Many box cameras put 12 2¼x2¼ negatives on the film size. Still others use smaller roll film. Which size you prefer is largely a matter of personal preference. However, anything smaller than 2¼x2¼ won't produce contact prints satisfactory for album use.

5. *Work out a system—and follow it.* Cameras with coupled rangefinders, reflex viewfinders, automatic film advance, and double-exposure prevention make life easier for the photographer. With most box cameras, however, you can't take these mechanical details for granted. Make it an iron-clad habit always to advance the film *immediately* after shooting. Then you'll never be in doubt about whether the film is exposed or not. You'll avoid wasting a frame or making an accidental double-exposure. (Many modern $10-$15 simple cameras have a double-exposure prevention device.) If your camera has a simple focusing scale, as many of the better models do, be sure to check this before shooting.

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6. *Control exposure by varying your film-developer combination.* This advice applies only to the more sophisticated box-camera photographer who processes his own film. By using a faster film and/or more powerful developer you can extend the useful range of the box camera. For example, Tri-X film permits you to make box-camera snapshots on a cloudy day. Tri-X film plus a vigorous "available-light" developer like Promicrol or Microphen makes it possible to take pictures in deep shade, as Feingersh did in his construction story.

7. *Avoid loading the camera in bright light.* Be especially careful with a fast panchromatic film like Tri-X. Strong light may slightly fog the film and degrade the resulting image. Remember that clean, sparkling prints depend on clean, sparkling negatives. Feingersh also advises sticking a flap of adhesive tape over the red film-advance window if you're using Tri-X. This pan film is so sensitive that even the dim red light admitted through the window may fog it.

8. *Keep lens and viewfinder clean.* The inexpensive lens of a box camera often is remarkably sharp. It deserves to be kept clean and free of dust and finger marks just as much as an expensive lens, if you want it to produce the best results of which it is capable.

9. *If the lens isn't deeply recessed, use a cardboard lens shade.* This is especially important when using sidelight or shooting into the light. Check your camera's lens and see if it is sufficiently shielded when the camera is turned away from the standard "sun-over-your-shoulder" position. You can easily construct a lens shade by rolling up a piece of cardboard and attaching it with scotch tape.—*Arthur Goldsmith.*

Offbeat Color

(*Continued from page* 50)

Hugh Bell's shot of the girl in the shawl shows what happens when E-2 Ektachrome Daylight Type is processed for a tripled speed rating.

3—LATE OR EARLY SUN. Sunlight is warmer (contains more red) in early morning and late afternoon, because at a low angle it is filtered through much more atmospheric haze. Hugh Bell's other color shot is an example of a late-afternoon lighting situation; even the shadow areas, which would be bluish at midday, are warm in tone.

4—HAZY DAY. Fog and haze can have widely varying effects on color fidelity, depending on whether impurities are present, and what they are. Generally, haze subdues strong colors and renders weak colors almost monochromatic. In John G. Ross' Paris snapshot, the background is totally lacking in color.

5—MOONLIGHT. The light of the moon is usually cool, and color pictures made by it are distinctly bluish. Other factors can influence this, like the color of the subject, or the kind of film used. Walter Benser, for instance, got the warm tones in his picture because he used Daylight Agfacolor film.

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color of the light source will determine the color of the resulting picture. You can use colored bulbs, or put gelatin filters in front of flood- or spotlight.

7—OUT-OF-FOCUS BACKGROUND. When spots of light in the background are thrown completely out of focus, they take on a soft jewel-like quality and can sometimes make an abstract setting.

8—FILTERS. There are Color Balancing and Color Correction filters which, when used according to film manufacturer's instructions, help you get balanced color when light or film is off-balance. If you use them "incorrectly," you will of course disturb the picture's color fidelity. Then there is the whole range of filters intended for use with black-and-white films; with color film they can produce scores of offbeat effects.

9—TWILIGHT OR PREDAWN. Before the sun appears in the morning and after it sets in the evening, you will find conditions just the reverse of those mentioned under "Late or early sun." The light is on the blue side, and much weaker. Color contrast will be subdued.

10—BLUR. When the camera or the subject is in motion during the exposure, there is sometimes a blending of one color into another, in addition to a softening of outlines. A yellow-and-blue scarf fluttering in the wind, for instance, might appear green in the finished picture.

11—REFLECTED COLORS. The color of the surroundings can affect the color of a subject more than is apparent to the eye. This is often noted in portraiture, when walls or clothing are of a pronounced hue, and some of the light that falls on the face is reflected from them.

12—EXPOSURE. Variation from "normal" exposure affects not only the intensity of colors in the transparency, but their fidelity to the subject as well. Overexposure results in washed-out pastel-like color, and underexposure causes colors to be oversaturated, even to appear black under normal viewing conditions.

There is still another technique that ought to be mentioned: the combining of two or more of these twelve. You might try, for instance, a yellow filter and motion blur, or "wrong" film and forced development together. The possibilities are limited only by your imagination.—

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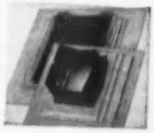

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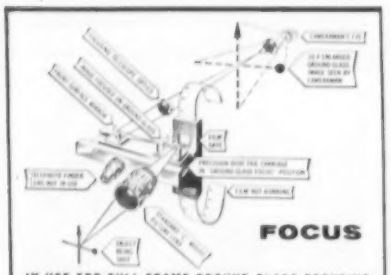

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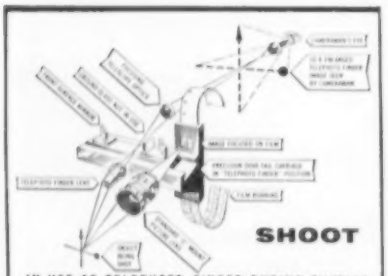

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Continued from page 34.

WHAT MAKES A GOOD PICTURE?

a symposium

Here are the complete answers to the question, *What makes a good picture?* by the twenty experts pictured on page 35. Their answers reveal an extraordinary diversity of approaches to one of photography's most important problems.

ANSEL ADAMS, *photographer*—To me, a good photograph is one which shows expressive and interpretative integrity; in which the subject is approached and photographed with taste and comprehension. The good photograph must have an appropriate craft quality and sensitivity of "seeing." The obligation of clarity is paramount—although this clarity is more of mind and heart than of the optical and material perfections of the medium. Photographers often tell fibs, but photography never lies!

ALEXEY BRODOVITCH, *art director Harper's Bazaar*—A picture which affects you emotionally, which stimulates thought; a picture which you can never forget, which you love for some reason or which irritates you; a picture which gives you the impact of intrigue, novelty, originality, or shock . . . These very personal reactions are usually achieved by subject matter, composition, quality of print—but sometimes the very opposite is the key, when these orthodox principles are absent, whether by intention or error . . . This (I guess) makes a picture good.

ANTON BRUEHL, *photographer*—I believe that subject matter is of first importance in a great photograph, but I also believe in photographic quality. I believe a good photograph must make use of this inherent quality that no other medium has, of recording accurately and beautifully the subject matter chosen by the photographer . . . I do not believe it is necessary to throw a photograph out of focus, move the camera during exposure, use trick printing or developing to inject "mood" into the picture.

HENRI CARTIER-BRESSON, *photographer*—You are asking me what makes a good picture. For me, it is the harmony between subject and form that leads each one of these elements to its maximum of expression and vigor.

SEY CHASSLER, *managing editor, Pageant*—Impact makes a good picture; not action—impact, a visual impression which hits something in the viewer. It can hit anything from anger and tenderness to the yen for knowledge and the desire for information. It must be clear, though. It cannot contain symbols known only to the photographer. It cannot reach that level of subtlety at which the photographer is forced to explain it. It can be abstract as a circle or detailed as a dictionary, but it must give something all by itself. A good picture doesn't need critics, artists, journalists, philosophers, or the photographer himself to explain it. It must carry its own weight and deliver its own impact.

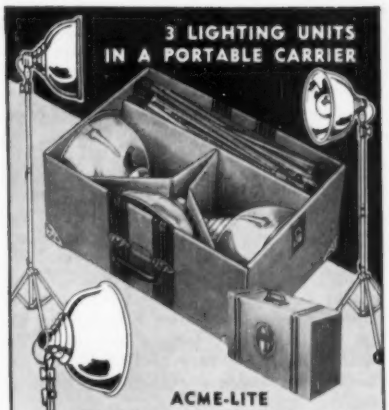
JOSEPH COSTA, *photo supervisor King Features—Sunday Mirror*—The question is as boundless as asking, "How high is up?". Good pictures in photography and the preferences of people are as varied as paintings and the tastes of connoisseurs in art galleries . . . The one indispensable ingredient is that a picture must be an eye-stopper. Whatever the subject matter, composition, lighting, camera angle, or general presentation must be such as to catch and hold the interest.

ANDRE DE DIENES, *photographer*—If a photograph so dominates the viewer by surprising, startling, horrifying, amusing, or exalting him, it must be a good picture. But there is such a wide scale of human intelligence and sensitivity that what impresses one may leave another unmoved. The best photographers seek to communicate great human emotions like sorrow and joy, horror and love, beauty and perfection, as well as sensuality and wit, and they hope that their photographs will be seen by people who understand them.

JACOB DESCHIN, *camera editor, New York Times*—A good picture has content, meaningfully expressed (the photographer has a point to make, and makes it), and effectively communicated (the photographer is sufficiently a master of his craft to make his point stick). Generally, a good picture is felt rather than merely understood (intellectually). Because it describes an experience in visual terms, words are inadequate as a measure of its value. The observer responds to a "good" picture, remains untouched by a "bad" one. Only a "good" picture itself can tell us what makes a good picture. Let's see the picture, I say.

ALFRED EISENSTAEDT, *photographer*—A good picture to my mind is a relative thing, depending on the observer. A good picture is what pleases me, though it may not and often does not please others. What I look for in a picture is great simplicity. It does not have to be a still-life picture but it should present one idea with clarity and should not be a confusion of so many elements that the observer cannot tell in a quick glance the meaning of the picture.

ADOLPH FASSBENDER, *photographic teacher*—A good picture is a replica of a visual image conceived by an artist who has the imagination, artistic and technical ability to transform his con-



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ception into a vivid representation. If his interpretation, coming from within his heart, is understood and admired by more and more people, success is assured.

ED FEINGERSH, *photographer*—There is no formula for a good photograph. Mediocre pictures may follow a formula, good ones seldom do. When the visual tools are used just right, the design, lighting, mood, and emotion come together to just the right point, and that point hits you and you know what the photographer meant—that's a good picture.

ANDREAS FEININGER, *photographer, author*—*Good* photographs enrich the experience of the observer by showing him *more* than he would have seen if confronted with the subject, because *good* photographs clarify, emphasize, dramatize, capture the "decisive moment," or offer a revealing close-up view—in short, depict the very essence of the respective subject or event.

PHILIPPE HALSMAN, *photographer*—A photographer worries about composition, timing, lighting, texture, design, unusual angles, print quality, etc.—but all this is not enough if the photographer has no depth and perception. A portrait is not a portrait if the very essence of the subject is not captured; a picture of a scene is just a snapshot if its meaning and emotion are not caught. But even then, everything is futile if the onlooker has no sensitivity and imagination.

NORRIS HARKNESS, *syndicated camera columnist*—The elements that make a good picture must be unobtrusive. The arrangement of the material, the action, the lighting, the balancing of the processing factors that constitutes good photographic quality—all must make their contribution without being obvious about it. And, with all the mechanical and artistic elements suited to the subject, a good picture must first be a good photograph expressing something worth expressing.

YOUSUF KARSH, *photographer*—Obviously, the first essential can lie only in the perceptivity of the photographer—his sensitivity, training, craftsmanship, and experience. A good picture is an intensely personal thing—it rests first in the mind and eye of the artist. His apparatus is secondary but technique is not. Brady worked with comparatively primitive equipment but few photographers have yet arisen to excel him. Why? For one reason—his superb technical command of his medium plus those other factors already noted. To-day the general tendency is toward technical sloppiness . . . toward a complete indifference to technique. Human interest is not enough. It must be accompanied by excellent craftsmanship. A good picture is never an accident—it may appear so. It is always a product of

Picture credits for the portraits on page 35: **Adams** by Nancy Newhall, **Brodovitch** by Landshoff, **Cartier-Bresson** by Richard L. Simon, **Fassbender** by Carl Shutt, and **Newhall** by Ansel Adams.

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BEAUMONT NEWHALL, *historian, critic, curator George Eastman House*—A good photograph says something so well that it cannot be said better any other way. It may be factual or poetic, but always it will be so true that from it we can learn of life. A good photograph is made by one who knows and respects his medium.

IRVING PENN, *photographer*—A good photograph is one that communicates a fact, touches the heart, leaves the viewer a changed person for having seen it. It is, in a word, *effective*.

JOHN RAWLINGS, *photographer*—There are basically two kinds of pictures; those where the photographer has some measure of control (over backgrounds, lighting, movement), and those in which the photographer is in the right place at the right moment, when something vital is happening, and has the ability to capture it. In this second group we find "great" pictures. In the first group, with which I am identified (fashion, beauty, travel, theatre), perhaps the secret is that the good picture arouses intense interest in the viewer, so that he identifies himself with the situation. Perhaps this kind of good picture helps us to measure ourselves, to increase our knowledge and understanding of one another. Certainly, a good picture must be eloquent enough to get at the emotions of people.

SANFORD H. ROTH, *photographer*—The culmination of the photographer's life experience together with its impact and effect on him is a great and constantly present influence. Through his use of line, form, texture, light, contrast, composition, and subject matter we finally see the emergence of a portrait of the photographer himself with his hopes, fears, truths, and indulgences actually imposed on the photograph. Subject matter? Cezanne approached the apple and the hillside and was rewarded with immortality. A hundred photographers can approach a given objective and come away with the sum total of themselves. The photographer, the man or woman, is the major contributing element—the conclusive element. Only after him can we go on with the speculations having to do with optics, chemistry, and fine machine-tooled instruments related to photography.

ARTHUR ROTHSTEIN, *technical director, Look magazine*—Anybody can take a good picture. Technical progress in photography has reached the point where the means for producing good photographs is available to all. Good pictures contain those characteristics which recognize and emphasize the photographic process. These are: 1. The reproduction of fine detail and texture. 2. The accurate rendition or willful distortion of perspective through proper choice of lens and viewpoint. 3. A range of tonal values from light to dark, which may be compressed or extended at will. 4. The ability to stop motion, to capture the exact instant or the decisive moment. . . . But more important is a recognition of what makes a great picture. In a great picture the camera discovers significance in things which seem unimportant. It reveals a new way of observing the commonplace and enriches the visible world of infinite detail. It opens up new vistas and bares the aspects of people and their environment with unequalled revelation.—▶

Printing—the Final Control

(*Continued from page* 49)

Consider the case of the bridal portrait illustrating this article. The negative was a perfect example of a thin-but-dense, contrasty-but-flat specimen. On close examination, it was found to be too thin in the highlights, too dense in the shadows, and choked up through the middle tones. This was probably the result of considerable overexposure coupled with sufficient overdevelopment to choke up the highlights without being of any benefit to the shadows. A straight print on No. 2 printing paper, exposed for the shadows, is shown in the upper left-hand corner of page 48.

Our preliminary attempt at correction was completely inadequate—a second trial on No. 2 printing paper with a certain amount of burning-in to bring out the highlight details and holding back or dodging to keep the shadow details from going completely black. Unfortunately, the paper just didn't have the necessary range, and so much burning-in was required that we couldn't keep the over-all exposure even.

The next step was a switch to High Speed Varigam paper which offered a number of unique advantages. First, we could expose the shadows with a high-numbered (contrasty) printing filter that produced a good, rich black without having any appreciable effect on the highlight and middle-tone areas. Then we could blast the rest of the picture with a lower-numbered (lower-contrast) printing filter while holding back the detailed shadow areas with our hands. Finally, we could burn-in the stubborn blocked-up highlight areas with very low number (flat-contrast) printing filters so the effect would look natural and even.

After much experimentation to determine the proper printing time and precise filter that would produce the desired effect in each critical area of the picture we arrived at the following step-by-step solution (our progress illustrated in the series of photographs reproduced on page 48).

FIRST, we gave an 18-second exposure through the No. 7 Varigam printing filter, which is roughly equivalent to a No. 3 paper grade in standard papers. The Omega B-6 enlarger was rigged with an Aristo H-I cold-grid unit, and the enlarging lens stopped down to *f*/8.

SECOND, we used the No. 5 filter for 15 seconds—dodging the pillars on the right-hand side of the picture, the top

of the archway, and the upper left-hand corner continually with our hands. Actually, the No. 5 filter is neutral, and we could have used no filter at all for this contrast effect, which is our normal custom. In this case, the extra printing time caused by the filter allowed us to dodge evenly.

THIRD, with the enlarger lens open all the way to f/4 we burned-in the front of the bridal gown from bosom to hemline for 8 seconds, using a piece of cardboard with a hole the size of a quarter in it to keep the local printing light where we wanted it. First try, we used the No. 2 (very low contrast) filter for this but found it lost sparkle.

FOURTH, with the No. 2 filter (enlarger still at f/4) we used another cardboard, this one with a gaping hole, to burn-in the shafts of sunlight on the stone wall behind our subject for 15 seconds. Incidentally, 15 seconds at f/4 is equivalent to 60 seconds at f/8. The soft No. 2 filter helped make this area blend in evenly with the dark areas above and below.

FIFTH, with the No. 3 filter and a piece of cardboard with a tiny hole in it we exposed the top of the head for 5 seconds to burn-in the halo caused by overexposure and lens flare. We could have given more than this, but stopped at 5 seconds to preserve some whiteness. No. 3 filter proved better than No. 2, which tended to give a muddy gray effect.

SIXTH, same setup as above, we exposed the left shoulder for 20 seconds, being as careful as possible to stay clear of the dress sleeve. Tried all filters from No. 1 through No. 5 before settling on No. 3 for this.

SEVENTH, we now gave the floor 20 seconds over-all burning-in with no filter to bring down the tones here so that the figure would jump out of the picture more effectively and to suppress extraneous props like the step gadget on the left-hand side of the picture.

EIGHTH, we gave an extra 10 seconds to the thin area in the extreme, lower right-hand corner in order to achieve a pure black. Just thought it looked better this way.

Although these eight steps sound complicated enough, we actually gave a ninth exposure. This consisted of setting the lens back to f/8 and giving a quick on-off blast of light for a brief fraction of a

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second. Many photographers think this last quick blast is for evening out the dodging and burning-in marks, or for some other highly technical reason. Not a word of truth to it. It's strictly for luck, and don't you believe that the Darkroom Gods will ever permit a good print to materialize unless this token offering is made. No incantations or special prayers are needed: just flick the switch up and down as fast as you can, and it's in the bag.

Seriously though, could we have made this print on a standard No. 2 paper? Well, *we* couldn't but there's no reason to suspect that a more able printer mightn't have turned the trick. Although the step-by-step history of this print sounds complex, by allowing us to break the problem down into three basic phases, the Varigam paper enabled us to do a job beyond our normal capabilities. The initial over-all blast with the No. 7 filter which did a lot in the shadows without materially affecting the highlights has no equivalent in conventional printing technique. The second over-all exposure, with the No. 5 filter, represented, in effect, our second "paper grade" on the same piece of paper. The No. 2 and No. 3 filters used for the various burning-in operations made it relatively easy to avoid uneven patch effects which require a great deal more skill to avoid on conventional printing paper.

Incidentally, in more instances than not, Varigam enables us to print without resort to local holding-back or burning-in techniques. Instead we divide our print exposure between one or more (usually one) higher-than-normal-contrast Varigam filters and one or more (or no) lower-than-normal filters. The high-contrast filter must, for some unexplained reason, precede the lower-numbered filter or filters. In this way, you print your shadows with one blast that hardly affects the highlights and then print-in your highlights with a second blast from a low-numbered filter, which adds some density to your shadow areas without closing them up. We like to call this "automatic-overall dodging." Works fine.

Last piece of real technical advice we might mention sounds terribly corny, but nevertheless: The best way to learn to be a good printer is first to learn to make good negatives. It is always within the province of the good printer to save a mediocre picture and to make a good one even better.—

It's the Photographer—Don Briggs

(*Continued from page* 70)

tion from a skylight and two photofloods bounced off a roll of seamless white background paper produced negatives of excellent quality.

Briggs used the same lighting for his color shots made on high-speed Daylight Ektachrome with exposures ranging from one to three seconds at f/16. These long exposures required him to set the shutter at "L" and depress the release for the estimated length of time. The transparencies tended to fall on the underexposed

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side, but contained rich, beautiful low-key color. Briggs used no filter; as a result the areas on the model where the bounce floodlighting fell were recorded as warm orange, while areas illuminated by the blue skylight (it was an overcast day) turned out a soft blue. Where the two types of illumination mingled, the skin tones were approximately normal. The end result was highly unusual and, we feel, an effective use of unconventional color.

Briggs faced two major technical problems. His camera, like Feingersh's, was equipped with a simple "guess-and-set" focusing scale. Moving back and forth as he did from close-ups to full-figure shots, he was constantly adjusting the focus. Although he miscalculated a few times, most of his guesses were right and the resulting images were critically sharp.

Holding the camera steady for the one-to-three-second time exposures required careful attention. He placed the camera on a tripod and operated the body-type shutter release as gently as possible. The model, a trained professional, was easily able to hold her pose steady during these exposures.

We think the box camera performed remarkably well both in the studio and on location. And we think the Feingersh-Briggs experiment dramatically reaffirms the importance of the photographer's role in the picture-making process. It is the man, not the camera, that ultimately counts.—

contests and markets

CONTESTS

AMERICAN MUSIC CONFERENCE has announced its contest to choose six winning photographs of amateur musicians participating in their hobby. Top prizes are $250, $150, and $100, along with three $25 prizes. Payment of $10 will be made to any non-winners whose photographs are used for publicity purposes. Contestants may enter an unlimited number of photographs of any size before the contest deadline, January 15, 1956. Submissions, as well as requests for further information, should be sent to: Photography Contest, American Music Conference, c/o the Philip Lesly Company, 100 W. Monroe St., Chicago 3, Ill.

MARKETS

AUTO LAUNDRY NEWS is looking for amateur photographers throughout the United States who can supply them with photograps of minute-car-wash establishments. Prices from $5 to $25 will be paid, depending on the use of the prints. Send prints and requests for further information to Mr. Robin King, editor, *Auto Laundry News*, Capuchinas 55, San Jose, Insurgentes, Mexico 19, D.F.

AUTHENTICATED NEWS SERVICE is looking for individual pictures and picture stories on the following: personalities, travel, industry, children and pets and news events. Acceptable material will be purchased outright or sold by the Service on a royalty basis; other material will be returned. Competent photographers in key cities in the United States may become permanent members of the organization. Write Alan D. Haas, Executive Editor of Authenticated News at 170 Fifth Avenue, New York, N. Y., for details.

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Calendar of exhibitions

* Conducted according to the recommended practices of the Photographic Society of America.

1956 Newark International Salon of Photography*, Vailsburg Camera Club and Mayor Leo P. Carlin, Newark, N. J.
Closes January 7, 1956, slides; January 21, 1956, prints.
Entry fee $1, four slides or four prints allowed.
On exhibit at Newark News Auditorium, Ivy Street School Auditorium, U. S. Veterans Hospital of East Orange, January 19, 20, 24 (slides); Newark Public Library, February 4 through 29 (prints).
For information and entry blanks, write Catherine Coursen, 223 Prospect St., East Orange, N. J.

60th (Jubilee) Annual Open International Exhibition*, Birmingham Photographic Society, Birmingham, England.
Closes January 14, 1956.
Entry fee $1, four prints or four slides allowed.
On exhibition at the Galleries of the Royal Birmingham Society of Artists, New St., Birmingham, February 11 through 25, 1956.
For information and entry blanks, write D. McM. Henderson, 254, Acheson Rd., Shirley, Birmingham, England.

23rd Wilmington International Exhibition of Photography*, Delaware Camera Club, Wilmington, Del.
Closes January 16, 1956.
Entry fee $1, four prints or four slides allowed.
On exhibit at Delaware Art Center, Wilmington, Del., February 5 through 26, 1956.
For information and entry blanks, write W. Leroy Miller, P. O. Box 401, Wilmington 99, Del.

11th Chicago International Nature Photography Exhibition, Nature Camera Club of Chicago, Ill.
Closes January 16, 1956.
Entry fee $1, four slides; $1 plus postage, four prints.
On exhibition at Chicago Natural History Museum, February 1 through 26, 1956.
For information and entry blanks, write Blanche Kolarik, 5801 W. 63rd, Chicago 38, Ill.

1956 Light and Shadow International Exhibition*, The Light and Shadow Club, Cupertino, Cal.
Closes January 18, 1956.
Entry fee $1, four slides; $2, four prints.
On exhibit at Rosicrucian Art Gallery, San Jose, Cal., February 2 through 28, 1956.
For information and entry blanks, write The Light and Shadow Club, 10621 Lawrence Rd., Cupertino, Cal.

Annual International Exhibition of Photography, The Ilford Photographic Society, Ilford, Essex, England.
Closes January 23, 1956.
Entry fee and number of prints on request.
On exhibition at Cecil Hall, Park Ave., Ilford, Essex, England, February 27 through March 13, 1956.
For information and entry blanks, write Colin Sims, 19, Christchurch Rd., Ilford, Essex, England.

1956 Seattle International Exhibition of Photography*, Seattle, Wash.
Closes January 30, 1956.
Entry fee $2, four prints, $1, four slides.
On exhibit at Seattle Art Museum, February 15 through March 25, 1956.
For information and entry blanks, write Jack Gillespie, Print Secretary, 803 E. 73 St., Seattle 5, Wash.; Raymond P. Schmad, Slide Secretary, 4006 E. 46 St., Seattle 5, Wash.

2nd Eastern Cape International Salon of Photography*, The Uitenhage Camera Club, Uitenhage, C. P., Union of South Africa.
Closes February 2, 1956.
Entry fee $1, four prints allowed.
On exhibition at Uitenhage Town Hall, February 27 through March 3, 1956.
For information and entry blanks, write The Secretary, Uitenhage Camera Club, P. O. Box 172, Uitenhage, C. P., Union of South Africa.

20th Rochester International Salon of Photography, Inc.,* Rochester, N. Y.
Closes February 5, 1956.
Entry fee and number of slides on request.
On exhibit at Memorial Art Gallery, Rochester, N. Y., March 2 through 25, 1956.
For information and entry blanks, write Jack Stolp, APSA, 282 Bellehurst Dr., Rochester 17, N. Y.

2nd International Exhibition of Pictorial and Technical Prints and 35-mm Colour Transparencies, Photographic Society of Kenya, Nairobi, Kenya, E. A.
Closes February 5, 1956.
Entry fee and number of prints on request.
For information and entry blanks, write P. H. Beers, Exhibition Secretary, P. O. Box 392, Nairobi, Kenya, E. A.

15th Montreal International Salon of Photography and 6th Montreal International Exhibition of Colour Slides, Montreal Camera Club, Montreal, Quebec, Canada.
Closes February 9, 1956.
Entry fee and number of slides on request.
On exhibition in Montreal, March 2 through 18, 1956.
For information and entry blanks, write M. Stein, 4355 Hingston Ave., Montreal, Que.

64th International Salon of Photography, Toronto Camera Club, Toronto, Ontario, Canada.
Closes February 10, 1956.
Entry fee $1, four prints allowed.
On exhibition at Simpson's Avon House Galleries, Toronto, March 13 through 24, 1956.
For information and entry blanks, write Toronto Camera Club, North Toronto YMCA, 130 Eglinton Ave. E., Toronto 12, Ont.

43rd Annual Pittsburgh International Salon of Photographic Art, The Photographic Section of the Academy of Science and Art, Pittsburgh, Pa.
Closes February 29, 1956 (prints), March 7, 1956 (slides).
Entry fee $2, four prints allowed; $1 plus postage, four slides.
On exhibit at Carnegie Institute Art Galleries, Pittsburgh, Pa., March 23 through April 22, 1956.
For information and entry blanks, write Walter R. Kneeland, Salon Secretary, 3658 Perrysville Ave., Pittsburgh 14, Pa.

22nd Annual International Black-and-White Salon of Photography*, Pictorial Photographers of America, New York City.
Closes March 15, 1956.
Entry fee $2, four black-and-white and/or hand colored prints allowed.
On exhibit April 8 to 22 at the Salmagundi Club, 47 5th Ave., N.Y.C.
For information and entry blanks, write Karl Kunkel, 326 East 30th Street, New York City.

12th Canadian International Exhibition and 1st Nature Exhibition of Colour Photography, Toronto Camera Club, Toronto, Ontario, Canada.
Closes March 15, 1956.
Entry fee $1, each division; four slides in each division.
On exhibit at Royal Ontario Museum Theatre, March 6 through 8, 1956.
For information and entry blanks in pictorial division, write C. W. Pugh, 48 Blyth Hill Rd., Toronto 12, Ont.; nature division, write L. A. Trapp, 37 Wolverton Ave., Toronto 6, Ont.—

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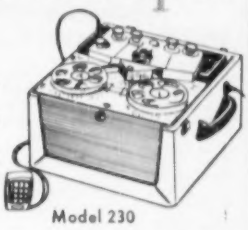

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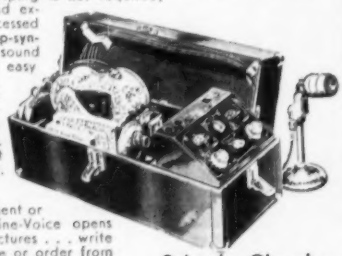

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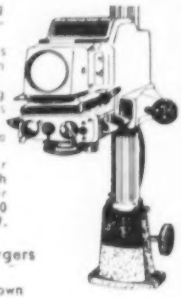

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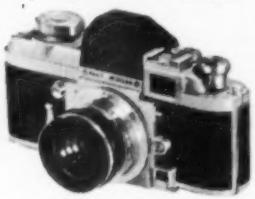

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Schneider Xenon 50mm coated f/1.9 with FULLY automatic diaphragm	$389.00	$38.90	$429.00	$42.90
Kern Switar 50mm coated f/1.8 APOCHROMAT with FULLY automatic diaphragm	419.00	41.90	459.00	45.90
Macro-Kilar E 40mm coated f/3.5	314.00	31.40	354.00	35.40
Macro-Kilar D 40mm coated f/3.5	339.00	33.90	379.00	37.90

Selected ALPA Wide Angle and Telephoto Lenses

Angenieux Retrofocus 28mm coated f/3.5 lens	$ 139.00
Old Delft Alfinar 38mm coated f/3.5 lens	89.00
Schneider Xenar 80mm coated f/2.0 lens	169.00
Schneider Tele-Xenar 90mm coated f/3.5 lens	119.00
Old Delft Algular 135mm coated f/3.2 lens	129.00
Zoomar Reflektar 3750mm coated f/25.0 lens	3500.00

America's Largest and Most Distinguished Mail Order Camera Specialists

• *Integrity* • *Reliability*

It's Sensational!

NEW FME

Two-Speed, High-Fidelity TAPE RECORDER

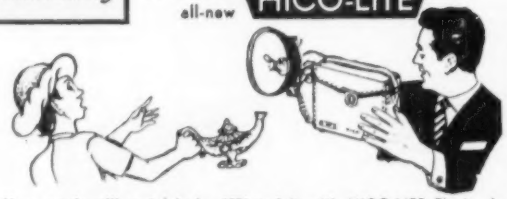
- **Dual speed: 3¾" and 7½" per second**
- **High-fidelity that will delight the most discriminating user**
- **Two-hour playing time**
- **Single knob control for quick, easy operation**
- **Neon record level indicator**
- **Radio-phono-TV input jack**
- **External speaker jack for large audiences, or for ear-phones**
- **Compact, light, attractively styled and sturdy two-toned case**
- **Plus a host of other features usually found only in machines selling for twice the price**
- **Foot pedal stop switch available as accessory only $139.95 Cash or**

Only $13.95 DOWN

Superb FME Model 47-A also available. $159.50 Cash or $15.95 Down!

Aladdin . . . Trade in Your Lamp!

. . for the all-new **HICO-LITE**



Your magic will certainly be 1956-variety with HICO-LITE Electronic Flash at your command. New worlds of picture-making possibilities will literally open before your eyes. The story is too big and too important for details here. Suffice to state: In advanced design, compactness and light-output — HICO-LITE is in a class by itself. Write directly to DOWLING'S Fifth Avenue **today** for **all** the facts. You'll learn about a rigid guarantee unlike anything else in the electronic flash industry. You'll read about HICO-LITE **convertibility** — an amazing account of how your 109 Pro Deluxe may be modified to a 228 Deluxe or even to a Deluxe Portable Portrait Unit, at any time, without scrapping or trading your existing equipment!

Or, here are the essentials for immediate ordering:

HICO-LITE 109 Pro Deluxe (complete with battery and shutter cord)	**$124.50 Cash or $12.45 Down**
HICO-LITE 228 Deluxe (complete with battery and shutter cord)	**194.50 Cash or 19.45 Down**
HICO-LITE AC Conversion Pac	**27.50 Cash or 2.75 Down**
HICO-LITE Deluxe Portable Portrait Unit	**349.50 Cash or 34.95 Down**

Free postage and insurance — of course! **Really** easy — interest-free — terms: Naturally . . . when your order is mailed directly to DOWLING'S Fifth Avenue!

USE COUPON ON NEXT PAGE TO REQUEST YOUR COPY OF OUR COMPLETE NEW 1956 CATALOG . . . IT'S *FREE!* MEANWHILE BUY *ANY* CURRENTLY ADVERTISED PHOTOGRAPHIC PRODUCT FROM D. F. A. JUST SEND IN YOUR ORDER *TODAY!*

Dowling's FIFTH AVENUE

10% DOWN

NO EXTRA CHARGE FOR CREDIT

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EASY PAYMENTS FOR CIVILIANS AND SERVICEMEN THE WORLD OVER!

The incomparable new 1956 Leica M-3

Leica M-3 w/ Elmar coated f/3.5 lens $348. Cash or $34.80 Down
Leica M-3 w/ Summicron coated f/2.0 lens 447. Cash or 44.70 Down
Leica M-3 w/ Summarit coated f/1.5 lens 468. Cash or 46.80 Down
Leica M-3 Body without lens 288. Cash or 28.80 Down

LEICA M-3 ACCESSORIES

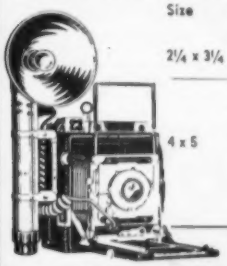
Summaron-M coated 35mm f/3.5 lens	$ 99.00 Cash or	$ 9.90 Down
Elmar-M coated 90mm f/4.0 lens (standard mt.)	93.00 Cash or	9.30 Down
Elmar-M coated 90mm f/4.0 lens (collapsible)	150.00 Cash or	15.00 Down
Hektor-M coated 135mm f/4.5 lens	141.00 Cash or	14.00 Down
Leica Meter-M	30.00 Cash or	3.00 Down
Adapter, standard Leica lenses to M-3	10.50 Cash or	1.05 Down

OTHER SUPERB NEW LEICA PRODUCTS

Stemar (Leica Stereo), complete	$297.00 Cash or	$29.70 Down
Valoy II Enlarger	96.00 Cash or	9.60 Down
Leica IIf with Elmar coated f/3.5 lens	$177.00 Cash or	$17.70 Down
Leica IIf with Summaron coated f/3.5 lens	216.00 Cash or	21.60 Down
Leica IIIf with Elmar coated f/3.5 lens	237.00 Cash or	23.70 Down
Leica IIIf with Summaron coated f/3.5 lens	276.00 Cash or	27.60 Down
Leica IIIf with Summicron coated f/2.0 lens	336.00 Cash or	33.60 Down
Leica IIIf with Summarit coated f/1.5 lens	357.00 Cash or	35.70 Down

1956 Pacemaker GRAPHIC OUTFITS

All brand new, latest models, with factory guarantee! Includes: • Graflok back • Ektalite screen • new Graphic coupled rangefinder with Rangelite and automatic parallax viewfinder • new full image wire finder • Graflite 3 cell flash gun • deluxe case • film pack adapter or roll film holder • 6 cut film holders • adapter ring • sunshade • 4 filters. Prices below include all this extra equipment! Easy payments available!



Size	Coated Lens in Shutter	Speed Graphic	Crown Graphic
2¼ x 3¼	101mm Ektar f/4.5 (1/800 sec.)	$338.	$299.
	105mm Tessar f/3.5	299.	279.
	105mm Ektar f/3.7	343.	294.
4 x 5	135mm Schneider Xenar f/4.7	299.	279.
	135mm Optar f/4.7	368.	319.
	127mm Ektar f/4.7	368.	319.
	135mm Tessar f/4.5	348.	299.
	150mm Tessar f/4.5	348.	299.
	150mm Schneider Xenar f/4.5	348.	299.
	152mm Ektar f/4.5	386.	337.
	135mm Schneider Xenar f/3.8	348.	299.
	150mm Tessar f/3.5	399.	379.
	150mm Schneider Xenotar f/2.8	499.	459.

New Graphic rangefinder is manufactured for 4 X 5 cameras only. 2¼ X 3¼ outfits are supplied with Kalart coupled rangefinder.

New 1956 Revere 800

Runs by itself! Model "553" (300 watt, automatic) $79.50 Cash or $7.95 Down; Model "555" (500 watt automatic) $89.50 Cash or $8.95 Down; Model "888" (500 watt, fully automatic) $144.50 Cash or $14.45 Down. Pr. incl. 7 trays and case.

1956 MINOX III-S

Fabulous! Weighs 2½ ozs.; 3" long. Automatic transport takes 50-exposure film. Built-in flash; 9 speeds to 1/1000th sec.; sharp f/3.5 lens. With case and chain $139.50 Cash or $13.95 Down. Accessory reflex finder $27.50; right-angle finder $14.95.

new 1956 Nikon S-2

Life-size rangefinder/viewfinder; rapid film transport; "full synch"; speeds to 1/1000th sec. With Nikkor coated f/2.0 lens $299.50 Cash or $29.95 Down; or with Nikkor coated f/1.4 lens $345. Cash or $34.50 Down. A real gem!

New 1956 Automatic Exakta VX

With fully automatic diaphragm lens listed: Tessar f/2.8 $259.50 Cash or $25.95 Down; Westagon f/2.0 $289.50 Cash or $28.95 Down; Biotar f/2.0 $345. Cash or $34.50 Down; Xenon f/1.9 $351.70 Cash or $35.17 Down. With Pentaprism R/F add $47. Cash or $4.70 Down.

ALL NEW 1956 RETINA IIIc

Built-in exposure meter and with normal Xenon coated f/2.0 lens in M-X shutter — $190. Cash or $19.00 Down. Optional: Curtar angle lens $42.50 Cash or $6.25 Down; Longar 80mm coated f/4.0 telephoto lens $82.50 Cash or $8.25 Down. Retina IIc $139.50 Cash or $13.95 Down.

New 1956 PORTABLE Radio-Phonograph Combinations

RCA "Stripper" battery-operated $65.80, battery and AC $79.75. Webcor (AC 3 speed automatic changer) $99.50. Superb Metz battery AC (AM and choice FM or short wave!) $129.50. Available for 10% down.

1956 Kodak Brownie Movie Outfits

Complete outfits with Brownie camera and Projector, Inc. single lens (f/2.7) camera $99.50; or (f/1.9) camera $108.75; or turret (f/1.9) camera with wide angle and telephoto $141.50. Available for 10% down.

1956 POLAROID Land Cameras

Highlander Camera only $69.95 Cash or $6.95 Down. Complete Highlander outfit camera, flash, meter, case for outfit, and 2 rolls of film only $97.50 Cash or $9.75 Down! Speedliner $89.75 Cash or $8.97 Down; New 700 $125. Cash or $12.50 Down.

1956 2¼ X 2¼ Single Lens Reflex Cameras!

Hasselblad 1000F with Ektar coated f/2.8 lens $379 Cash or $37.90 Down; Hasselblad Superwide with Biogon Coated f/4.5 lens $489.50 Cash or $48.95 Down. Exakta 66 with Tessar Coated f/2.8 lens $319.50 Cash or $31.95 Down.

NEW Models 1956 Rolleis

Rolleicord V with Xenar f/3.5 lens $134.55 Cash or $13.45 Down. Rolleiflex with Xenar f/3.5 lens $217.50 Cash or $21.75 Down; or with Tessar f/3.5 lens $232.50 Cash or $23.25 Down. New Rolleiflex 2.8D with Xenotar or Planar f/2.8 lens $291.50 Cash or $29.15 Down.

Top 1956 16mm Equipment!

B&H 70-DR, TTH f/1.9 $385.50 Cash or $38.50 Down; B&H Filmosound 202 $719. Cash or $71.90 Down; Cine-Kodak K-100, Ektar f/1.9 $269. Cash or $26.90 Down; CineKodak Special II, Ektar f/1.4 $1175. Cash or $117.50 Down.

Complete 1956 Keystone 5-Unit Movie Outfit

Top-quality Olympic 8mm turret camera with normal f/2.5 lens, Kinotar wide angle f/2.5 lens, Kinotel telephoto f/3.5 lens, latest Brockway M-3 exposure meter, plus roll 8mm Kodachrome film. Complete $139.50 Cash or $13.95 Down.

ALL EQUIPMENT LISTED IS BRAND NEW—FACTORY PACKED. OUR STOCKS OF BOTH USED AND NEW EQUIPMENT ARE HOWEVER MOST EXTENSIVE. PLEASE WRITE FOR ANYTHING PHOTOGRAPHIC.

Dowling's 175 FIFTH AVENUE, NEW YORK 10, N. Y.
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Please ship the following immediately: _____ P-256

Enclosed is $_____. ☐ Down Payment ☐ Complete Payment.
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☐ I am shipping equipment for exact allowance.
Your trade-in may be used as down payment! It will be returned at D.F.A.'s expense if you don't accept our top offer.
☐ Send FREE literature on _____
☐ Send FREE 1956 Catalog. ☐ Send pamphlet on "Deferred Payments."

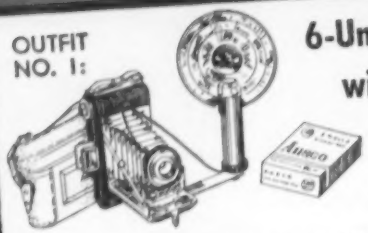
Name _____
Address _____
City or Town _____ State _____

MAIL TODAY

SAVE Dollars at Dowling's FIFTH AVENUE

Never before a sale like this! Save up to 50% and more on BRAND NEW Ansco camera outfits with D.F.A. imported flash units!

OUTFIT NO. 1:



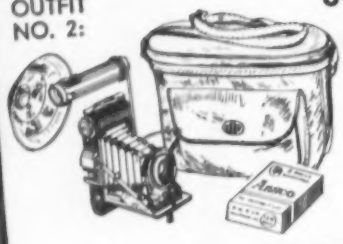
6-Unit Camera Outfit with Ansco Viking Readyset

Agfa Isomar lens. Instant shutter and lens setting for trouble-free shooting! 8 large black and white or color pictures on 120 film. **Complete** with ANSCO eveready case, flash unit, and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$16.95**

Regularly $32.84
Save $15.89!

OUTFIT NO. 2:



6-Unit Camera Outfit with Ansco Viking f/4.5

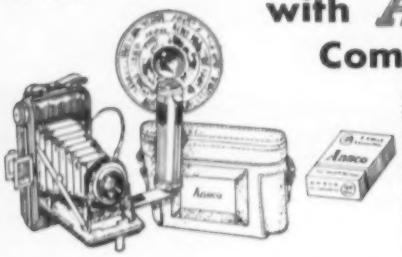
Agfa Agnar f/4.5 zone-focusing lens. Self-timer shutter; speeds to 1/200th sec. Body shutter release for smooth shooting. Optical finder and accessory shoe. 8 large pictures to a roll. **Complete** with roomy gadget bag, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$29.50**

Regularly $60.39
Save $30.89!

OUTFIT NO. 3:

6-Unit Camera Outfit with Ansco Commander



Agfa Agnar f/6.3 zone-focusing lens. Vario synchronized shutter with speeds to 1/200th sec. 8 large pictures to a roll. **Complete** with ANSCO genuine leather case, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$21.95**

Regularly $45.64
Save $23.69!

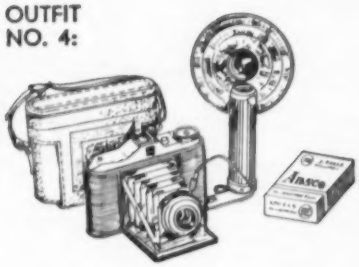
Here's DOWLING'S Fifth Avenue quality at never-before LOW, LOW prices! Because D. F. A. is the leader in the new, fine camera field—we don't dabble in off-beat "buys." This special, first-ever sale comes instead from our unique purchasing power with top camera manufacturers. And the unprecedented savings are passed along to YOU! Just look at these BRAND NEW, FACTORY PACKED, complete camera outfits: All are the latest, current 1956 models!

ANSCO folding cameras are ultra-modern and streamlined. They GET MORE PICTURES . . . because they are compact enough to go ANYWHERE. Touch a button and your ANSCO camera snaps to attention—ready for instant action! Yet every ANSCO camera shown here uses popular 120 roll film for large-size album prints. All are products of world-famous Agfa Camera Werk, Munich, Germany. Eveready cases and film are by ANSCO, U.S.A. Luxurious gadget bags and flash units are exclusive D.F.A. (not Ansco) products. *Every* unit is top-notch. All function together as a smooth team, giving you perfect pictures every time!

You'll receive a COMPLETE 6-unit outfit, exactly as illustrated. Each outfit is covered by DOWLING'S Fifth Avenue distinctive LIFETIME GUARANTEE and 30 DAY FREE TRIAL privilege.

Check over these exciting outfits NOW. Treat yourself. Treat your family and friends. These DO make perfect gifts. NOT sold through local dealers. Available ONLY from D. F. A. Don't delay. Make sure YOU capture this once-in-a-lifetime opportunity! Mail your order DIRECTLY to DOWLING'S Fifth Avenue TODAY!

OUTFIT NO. 4:



6-Unit Camera Outfit with Ansco Speedex

Agfa Agnar f/4.5 zone-focusing lens. Flash synchronized Vario shutter, with speeds to 1/200th sec. 12 album-size pictures on 120 film. Optical viewfinder and accessory shoe. **Complete** with ANSCO top-grain case, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$29.50**

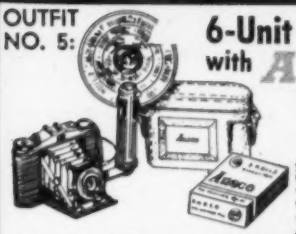
Regularly $45.39
Save $15.89!

Dowling's 175 Fifth Avenue, New York 10, N. Y.

FIRST-EVER *Ansco* CAMERA SALE!

Cash in NOW on **Dowling's Fifth Avenue** biggest ***Ansco*** camera scoop of the year! Tremendous values!

OUTFIT NO. 5:



6-Unit Camera Outfit with Ansco Speedex f/4.5 Special

Agfa Apotar f/4.5 zone-focusing lens. Prontor SV shutter, with 8 speeds from 1 full sec. to 1/300th sec. Built-in self timer. Full synch' for all flash and electronic units. Double exposure prevention lock. Body shutter release; optical viewfinder; accessory shoe—plus a host of other valuable features! **Complete** with ANSCO eveready case, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$34.95** Regularly $63.39 **Save $28.44!**

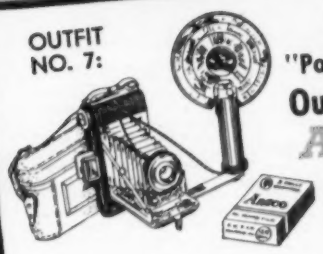
OUTFIT NO. 6:

6-Unit Camera Outfit with Ansco Speedex Special "R"

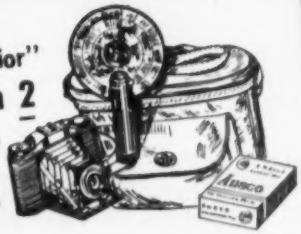
This is "tops" in the famous Speedex line! Agfa Apotar f/4.5 zone-focusing lens. Prontor SVS 8 speed shutter, with built-in self-timer. Fully synchronized for every type of flash. Double exposure prevention mechanism. PLUS . . . independent built-in **rangefinder** combined with viewfinder! Removes all guess work and insures needle-sharp focusing everytime! The Special "R" delivers 12 album size prints on 120 film. **Complete** with handsome gadget bag, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$39.50** Regularly $70.89 **Save $31.39**

OUTFIT NO. 7:



12-Unit "Pop and Junior" Outfit with 2 Ansco Cameras



Now you can treat yourself and treat Junior too! Imagine: You'll receive the **complete** ANSCO Viking Readyset Outfit No. 1 AND the superb, **complete** ANSCO Speedex Special "R" Outfit No. 6! A total of 12 units: 2 fine cameras; 2 flash units; Viking case; Speedex Special "R" gadget bag; and 6 rolls of ANSCO All-Weather film! Yours will really be a "photographic" family! (BOTH outfits complete!).

From D. F. A. only . . . **$49.95** Regularly $103.73 **Save $53.78!**

ANSCO SALE EXTENDED 1 MORE MONTH!

By overwhelming popular demand, we have consented to extend our first-ever ANSCO camera sale for just one more month. We're about sold out—only a few thousand of these very special, exclusive D. F. A. outfits are now available for shipment! An immediate order is earnestly recommended.

ALL outfits shown are available ONLY from DOWLING'S Fifth Avenue. Mail your order TODAY directly to our New York headquarters. Postage and insurance FREE the world-over — including A. P. O. and F. P. O. addresses!

ANSCO FILM FURNISHED IN HANDY 3-ROLL PAK!

RUSH ORDER FORM

Please check the **complete** ANSCO outfits you want. It's first come—first served on this scoop of the year!

- ☐ 1. ANSCO Viking Readyset 6-Unit Camera Outfit $16.95
- ☐ 2. ANSCO Viking f/4.5 6-Unit Camera Outfit 29.50
- ☐ 3. ANSCO Commander 6-Unit Camera Outfit 21.95
- ☐ 4. ANSCO Speedex 6-Unit Camera Outfit 29.50
- ☐ 5. ANSCO Speedex f/4.5 Special 6-Unit Camera Outfit 34.95
- ☐ 6. ANSCO Speedex Special "R" 6-Unit Camera Outfit 39.50
- ☐ 7. ANSCO "Pop and Junior" Special Two-Camera (12-Unit Outfit) 49.95

Dowling's 175 FIFTH AVENUE, NEW YORK 10, N. Y.
in a N. Y. Landmark, the Flatiron Bldg. at 23rd St.
Mail Order Showroom, Suite 2000. Tel.: ORegon 4-7900

P-256

Enclosed is $..... for the special ANSCO outfits checked on the accompanying RUSH ORDER FORM.

- ☐ Please address the shipment as shown below *.
- ☐ I want several outfits sent to various addresses. A note with complete shipping instructions is attached.
- ☐ Please gift-wrap. No charge for this service!
- ☐ Enclose a gift card with my name as donor: .....

* Ship to (Name): .....

Address: ..... MAIL TODAY

City or Town: ..... State: .....

MORE of D.F.A.'s 6 Page Guide to the *best* in Photographic Equipment!

Dowling's
FIFTH AVENUE

Visit our Skyline Suite to say "Hello!"

Hitch your wagon to the star! . . .

1956 CONTAX II-A and III-A

ZEISS IKON

Single-window for rangefinder and viewfinder, metal focal plane shutter, removable back, bayonet lens mount, delayed action release, full built-in flash synchronization are just a few of the reasons for the acknowledged leadership of CONTAX! Contax II-A with Tessar coated f/3.5 lens **$261. Cash or $26.10 Down**; with Sonnar coated f/2.0 lens **$345. Cash or $34.50 Down**; or with Sonnar coated f/1.5 lens **$374. Cash or $37.40 Down.** For Contax III-A (with built-in exposure meter) add **$38. Cash or $3.80 Down.**

Selected Contax Lenses and Accessories

Biogon 21mm f/4.5	$249.00 Cash or $24.90 Down
Biogon 35mm f/2.8	183.00 Cash or 18.30 Down
Planar 35mm f/3.5	102.00 Cash or 10.20 Down
Triotar 85mm f/4.0	106.00 Cash or 10.60 Down
Sonnar 85mm f/2.0	229.00 Cash or 22.90 Down
Sonnar 135mm f/4.0	146.00 Cash or 14.60 Down
Stereotar C, 35mm f/3.5's	159.00 Cash or 15.90 Down
Stereo Prism Attachment	37.00 Cash or 3.70 Down
Stereo Viewfinder	10.00 Cash or 1.00 Down

1956 ▲ IKOFLEX

Ikoflex I-A with Novar coated f/3.5 lens in Prontor full synch' shutter **$76. Cash or $7.60 Down; Ikoflex I-A** with Tessar coated f/3.5 lens in Prontor full synch' shutter **$96. Cash or $9.60 Down;** and the superlative **Automatic Ikoflex II-A** with Tessar coated f/3.5 lens in Synchro-Compur MX shutter **$126. Cash or $12.60 Down.**

1956 CONTAFLEX

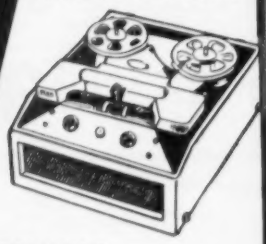
The gem of all 35mm Single Lens Reflex cameras! Ground-glass eye-level focusing is combined with split image rangefinder. Superb Tessar 45mm coated f/2.8 lens with fully automatic diaphragm. Contaflex I **$169. Cash or $16.90 Down;** Contaflex II (Built-in meter) **$199. Cash or $19.90 Down.**

Just released! . . . Brand new 1956 CLIPPER

THE SUPERB **Pentron** **PORTABLE** TAPE RECORDER

***With Exclusive* MONOMATIC* CONTROL**

MONOMATIC is a single knob control providing instant selection of Record or Play, in either 7½" or 3¾" tape speeds, as well as Fast Forward and Fast Rewind. Any position may be selected by a flick of the finger, in either tape speed.



The CLIPPER

(Don't confuse with discontinued models)

Regularly $129.50. Now, from D. F. A., only $99.50.

Cash or only $9.95 Down

- Plays in any position!
- Simplest to operate
- High fidelity performance
- 2-speed, 2-hour operation

DOWLING'S Fifth Avenue also features

Pentron Multi-speed Portable Tape Recorder.

$189.50 Cash or $18.95 Down

Pentron 3 Speaker High Fidelity Tape Recorder for life-like dimensional presence.

$225.00 Cash or $22.50 Down

Hi-fi enthusiasts! Write D. F. A. for free brochure on Pentron low cost hi-fi tape components for portable use and custom installations!

A Cordial Invitation...

No doubt about the ease of shopping by mail! . . . but it is nice to meet personally our mail order friends. Whether to say "hello" or to talk cameras, you'll find a warm welcome! Our Mail Order Division is on the 20th Floor (Skyline Suite) of that famous landmark, the Flatiron Building . . . The panoramic view of New York is most photogenic. When you are in our home town, please do stop in!

IT'S ECONOMY TO START WITH THE FINEST!

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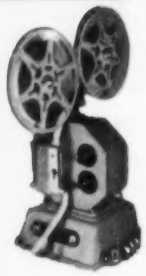

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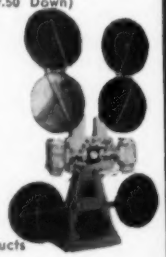

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Photograph by Albert Gruen

Mike Wallace interviews editor Bruce Downes as POPULAR PHOTOGRAPHY's 1955 contest exhibit is televised by Dumont's station WABD.

OUR CONTEST ON TV

Photograph by Richard Byron Conrad

B. G. Davis, president, Ziff-Davis Publishing Company, presents Daniel R. Rubin with $2,000 check, first prize in contest's color division. Master-of-ceremonies Mike Wallace holds microphone for Dumont station WABD.

Following telecast, U. S. Information Service filmed event for Japanese TV. Here with 1st prize print are B. G. Davis, Kinji Moriyama, Director, Japan Camera Center, Mrs. Moriyama, and Jun Tsuchiya, Consul General of Japan.

POPULAR PHOTOGRAPHY's 1955 prize-winning picture exhibit at Kodak's Grand Central Station gallery makes history and scores hit on television.

Last November 9 POPULAR PHOTOGRAPHY added another to its long list of "firsts" when the print exhibition from the 1955 POPULAR PHOTOGRAPHY $25,000 International Picture Contest opened at the Kodak Information Center in New York's Grand Central Station. The gala opening, covered by three WABD television cameras, marked the first time a photographic exhibit was televised.

The exhibit area was transformed into a television studio for the half-hour event by a crew of 15 under direction of Dick Sandwick and Producer Ted Yates. Lighting and control equipment were installed and a large storage closet was converted into a control room. The 1955 prize-winning pictures were the silent stars of this show. Mike Wallace, top TV personality, led the cameras around the exhibit while he and editor Bruce Downes discussed the pictures. Wallace also interviewed B. G. Davis, president, Ziff-Davis Publishing Co., on the bright future of photography. The two top winners in the color division, Daniel R. Rubin and Walter Chandoha, received their awards of $2,000 and $1,000 respectively from Mr. Davis, while Jun Tsuchiya, Japan's Consul General in New York, accepted the $2,000 first black-and-white prize in behalf of Hideichiro Katayama, a press photographer in Nagoya.—▶

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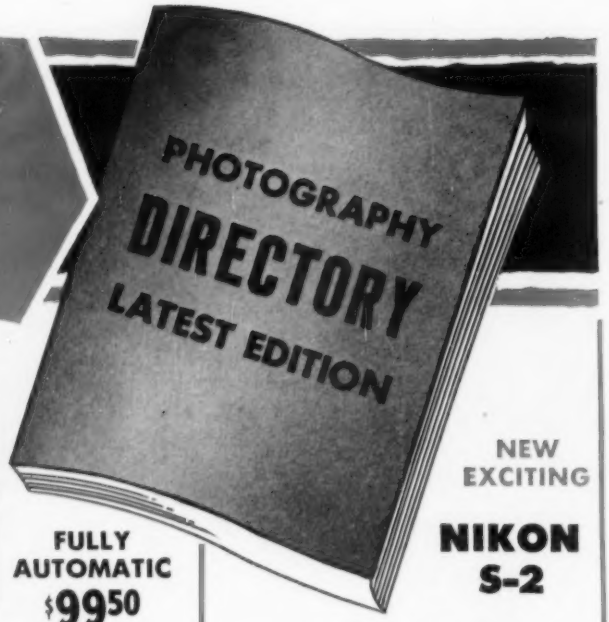

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Richard Leacock tells

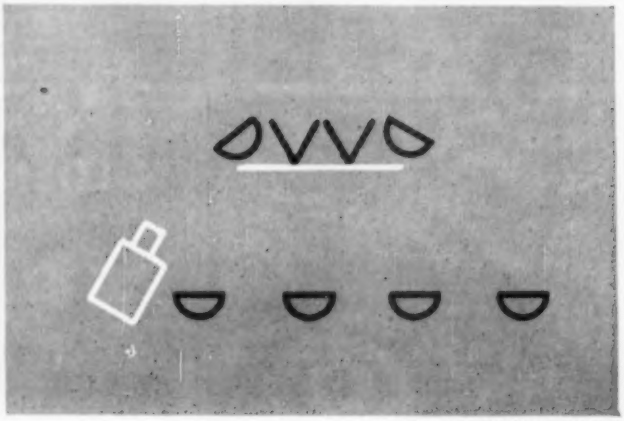
How to boost

Richard Leacock is one of today's great documentary cameramen. At 14 he made his first documentary. It was bought by a British educational service and is still being shown. Robert Flaherty, the late dean of American documentary film makers, saw Leacock's first efforts and encouraged him. Years later, he hired him as chief cameraman on his now-famous film, Louisiana Story. *Recently he has been acting as a director-cameraman. He shot the film, from which the stills in this story were taken, for Ford Foundation's TV show,* Omnibus.—The Editors.

Identical lighting setup was used for the long, medium, and close-up shots shown here. Leacock placed four RFL2 floodlights high above the stage, aimed out on the audience. On a tent post in the audience he added two RSP2 spots, and two more RFL2 floods. This lighting boosted the stage light spilling onto crowd, and preserved available-light feeling.

Richard Leacock uses a simple theory to produce natural-looking films—don't fight available light, boost it!

Any professional or amateur photographer can learn Leacock's technique and use his ideas. They are based on the use of simple, inexpensive lighting equipment, and with a bit of imagination and experience, his technique can



available light

By HUGH BELL

help your films take on a "natural look."

But before we go into a discussion of specific things in Leacock's technique let's talk about general principles you first must understand about motion-picture lighting.

1. Because you cannot vary your movie-camera shutter speed as easily as on your still camera, your light level must be high enough so you can expose film at 1/50 second (or 24 frames per second). The new high-speed emulsion films and forced processing will help you in many cases, allowing you to use low-wattage lamps, thus improving the available-light feeling.

2. Because motion-picture films cannot handle great contrast, you must be constantly aware of the ratio between your lights.

3. Because your eye can trick you on the difference in intensity of light from one area in your scene to another, you must light each scene by area and take meter readings in each area, remembering to change exposure as your camera moves from place to place.

Now let's examine Leacock's lighting system against the other systems that have been employed in documentary film making.

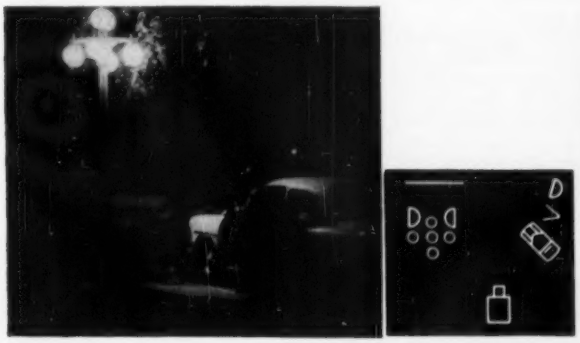
The *bouncelight school* floods an area with soft even light, eliminating shadows and therefore a directional feeling to the lighting. Such lighting often makes a scene undramatic. Bouncelighting often requires big lights.

The available-light-only school depends on high-speed emulsion films, and forced processing. This school does not employ any extra light beside that which is already in a scene. Sometimes the contrast is almost forbidding in an all-available-light film.

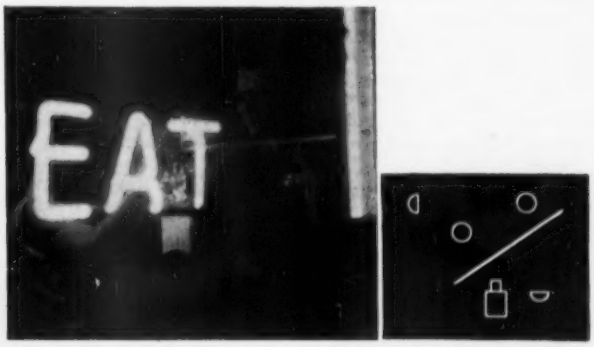
The *key-kick-fill school* (by far the largest) makes studio situations out of all scenes. This school sets up a key light and fill-in lights to compensate for shadow areas. Often films made with such lighting are overlighted, and give a far-from-natural feeling to one's audience.

Now, Richard Leacock's school, which we might call the *boost-available-light school*, works on the following principle: when you arrive on location, carefully study the play of the light already on the scene and then figure out how to boost this available light without losing any of the natural feeling.

Leacock searches out natural sources of light—windows, ceiling fixtures, table lamps—and then places his main lights in positions that will duplicate and extend the play of the available light. For example, if Leacock has to light a scene in which there is window light and light from a lamp he will place his mainlight near the brighter of the two and his fill near the other. Once in a while a scene will need a soft kick-in light to separate the main subject from the background. Leacock will carefully add it to his set-up. In such a scene, the table lamp and the window have to be the brightest of any objects or (*Continued on page* 112)

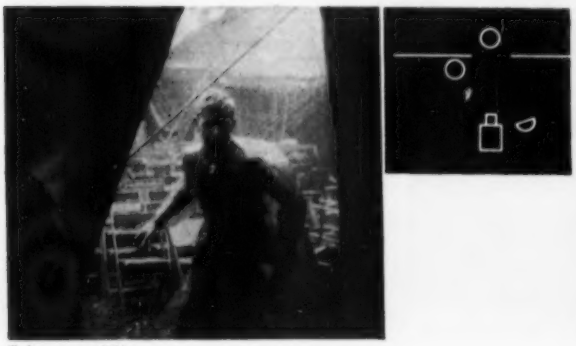


Leacock's problem in this scene was to boost the light coming from the street lamp. He placed two RFL2 lamps on the lamp post, then hid an RSP2 behind the tree for extra background illumination.



One 300-watt flood on the inside of the cafe and a 150-watt flood on the outside were used in this scene. The purpose of the outside light was to illuminate the sign in the lower corner of the window.

By placing a light inside the tent, Leacock kept this figure from being silhouetted. One RFL2 at the right of the camera was all that was needed. It was placed far enough away so it would only fill in.



In order to duplicate lighting conditions inside tent Leacock had to use two floods (RFL2), one behind to the left and one front right. Note the rimlighting on the cap and modeling on the worker's face.

Fundamentals of editing

CCNY MOVIE SHORT COURSE PART IV

By ROGER TILTON

Roger Tilton, Instructor in Film Editing, The City College of New York

This is the last in a series of four articles by instructors at CCNY Institute of Film Techniques

One of the worst ways to approach movie making is to buy a camera under the impression that all one needs to do is to learn to take good pictures with it. Armed with our new camera and a few rolls of film we set off to "make every foot good." We devote one carefully composed, well exposed, sharply focused shot to each subject and move on to the next, rationing out our footage with parsimonious fear. We hate to shoot the same thing twice or to waste a foot of film by letting the camera run too long. We are particularly elated when our roll of film returns from the laboratory and we see that we have, indeed, filled every frame with a precious image; nothing needs to be "cut out"; and we can, in fact, show the whole reel just as it is to our uncritical family or to our politely bored neighbors. We have come to treasure each shot as though it were a snapshot in an album, standing alone and unaided, telling its whole story in and by itself. We have learned to take good moving pictures, but we have *not* learned to make good *films!*

Why?

It is because we have mistaken only the first requisite of successful movie making for the whole show. Of course we learn to take good photographs, but this should only be as a means to our real end which is to entertain and excite our audience with a complete motion picture. This means organising all of our "good photographs" into one continuous flow of images which *together*—each helping the other—build a total effect on the audience. We cannot depend upon the inherent qualities in each separate shot to do the job alone. Instead, we must select our best shots, place them in a meaningful order, and trim them down to their barest essential length. This, in short, is editing, the other half of the moviemaker's art, the last and most crucial tool with which to manipulate the attention, understanding, and emotional responses of his audience.

Let's turn now to a typical vacation film and see how editing can help it to become more entertaining and dramatic. After all, you don't just want to show your audience what Coney Island *looked* like on your trip last summer—you want them to *feel* that they are taking the trip themselves. You must sweep them off their feet onto the roller coaster, dazzle them with myriads of flashing signs, fill their eyes with hot dogs, sugar cotton and popcorn, and make them laugh at the antics of the Fun House.

Let us say that you have photographed just such shots as these and they have come back from the laboratory scrambled together as you happened to film them. First, you must simply get to know your footage. Screen it over and over again for yourself, jotting down the outstanding features of every shot, learning each by heart until you know it intimately. What is in each shot? Is it exciting or slowly

CCNY student examines section of film before threading it into a Moviola editor.

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Bell & Howell 134-TA, 0.5" f1.4 & 7mm f2.5 & 1.5" f1.9	219.95	149.50
Bell & Howell 172-B, 0.5" f2.5	134.95	74.50
Bell & Howell 172-A, 0.5" f2.5	169.95	94.50
Bell & Howell 172-K, 0.5" f1.4 & 1.5" f1.4	221.95	144.00
Keystone K-25 Capri, 0.5" f2.5	49.95	27.50
Keystone K-35 Olympic, 6.5mm f1.9 & 12mm f1.9 & 1.5" f1.9	121.95	79.50
Keystone K-41 Bel Air, 13mm f2.5	89.50	32.50
Keystone K-45 Riviera, 6.5mm f1.9 & 13mm f1.9 & 1.5" f1.9	141.95	74.50
Bolex H-8 Leader, 0.5" f1.9	259.50	132.00
Bolex H-8 Leader, 6.5mm f1.9 & 0.5" f1.9 & 1.5" f1.9	281.50	185.00
Bolex H-8 DeLuxe, 6.5mm f1.9 & 0.5" f1.5 & 1.5" f1	441.00	255.00
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Bolex B-8, 0.5" f1.5 & 1.5" f1.5	189.50	129.50
Bolex B-8, 0.5" f1.9 & 6.5mm f1.9	181.50	99.50
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Revere C-50, 12.7mm f2.8	49.50	19.95
Dejur DC-1100 Eldorado, 13mm f2.5	54.95	27.50
Dejur DC-600 Citation, 13mm f2.5 & 1.5" f2.5	76.95	49.50
Dejur DC-400 Embassy, 13mm f2.5 & 1.5" f1.9	107.95	73.50
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Bauer 88B Built-in Exposure Meter, 0.5" f1.9	139.95	
Bauer 88C, 0.5" f1.9	84.95	
Cumig 88 Built-in Exposure Meter, 0.5" f1.9	139.50	89.50
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Bell & Howell 112-L Regent	179.95	89.50
Bolex G8-16, with case	376.00	149.50
Bolex M-8	169.50	79.50
Bolex M-8R	199.50	89.50
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Keystone K-70C Brightbeam	69.95	41.50
Keystone K-95M Nine-Five Magna Scope	124.50	76.00
Keystone K-100 One Hundred	99.95	54.50
Keystone K-109 Regal	159.50	79.50
Keystone K-109M Regal Magna-Scope	159.50	79.50
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Bell & Howell 200-TA Magazine Camera with Ultra High Speed Lenses 1" f0.95 & 0.5" f1.5 W.A. Lens, & with 3" f1.5 Telephoto Lens	415.95	299.00
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Bell & Howell 70-DL with 1" f1.9		219.50
Bell & Howell 70-DR with 9.5mm f2.2 & 1" f0.95 & 640mm f5	817.00	595.00
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Bolex H-16 Leader with 10mm f2.2 & 1" f0.95 & 2" f1.4	495.00	365.00
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Bolex H-16 Supreme with 13mm f1.5 & 1" f1.5 & 3" f1.5	499.00	375.00
Cine-Kodak Special II with 1" f1.9	996.00	560.00
Keystone A-9 with 1" f2.5	95.50	47.50
Keystone A-12 with 1" f1.9 & 3" f1.9	162.50	67.50
Revere 16 with 1" f2.5	157.50	99.50
Revere C-36 with 1" f2.5	158.50	
Revere 26 with 1" f1.4	215.50	129.50
Revere 26 with 17mm f2.7 & 1" f2.5 & 3" f2.5	217.50	99.50
Revere C-38 with 10mm f2.2 & 1" f1.5 & 3" f1.9	269.50	149.50
Revere C-101 with 1" f2.5 Lens	139.50	
Revere C-106 with 1" f1.5 & 3" f1.5	254.50	
Wollensak 93 with 1" f1.9 & 0.7" f2.5 & 3" f2.8	287.50	149.00

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Bolex G8-16	339.50	135.00
Keystone A-82C Continental	129.50	76.00
Keystone K-161 Belmont	159.50	82.00
Revere 48	182.50	82.00
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Bell & Howell 385-C	464.95	
Bell & Howell 285-C	449.95	229.00
Bell & Howell 285-B1 New Academy	529.95	275.00
Bell & Howell 285-B2 Auditorium	599.95	295.00
Rodescope Pageant	375.00	199.00
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Bell & Howell 202-C	$719.00	$399.00
Bell & Howell 202-B1	799.00	425.00
Bell & Howell 202-B-3	969.00	495.00

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Contax I f2.8 Tessar		42.50
Contax II f2 Sonnar		79.95
Contax III f2 Sonnar		104.95
Contax IIA f1.5 Sonnar	374.00	163.50
Contax IIIA f2 Sonnar	383.00	184.50
Contax IIIA f1.5 Sonnar	412.00	189.95
Leica IIIC, f3.5 Elmar		86.50
Leica IIIC f2 Summitar		114.00
Leica IIIF f3.5 Elmar	237.00	127.75
Leica IIIF f2 Summicron	336.00	172.50
Leica IIIF f1.5 Summarit	387.00	181.50
Nikon S2 Nikkor f2	299.00	109.50
Nikon S2 Nikkor f1.4	299.95	162.50
Rectaflex f2 Xenon	350.00	119.95
Bolsey B2/BF	66.50	27.50
Bolsey C22 f3.2 Reflex	99.50	57.50
Kodak Flash Bantam f4.5	56.00	27.00
Kodak Pony 828 f4.5	39.00	14.75
Retina II f2 Xenon		94.50
Kodak Bantam Special f2 Xenon	185.00	77.40
Kodak Town & Country f3.5	75.00	44.50
Minox III$ Chain and case	159.50	78.50
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Leica IIIF	56.50	+ your Leica IIIC
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Nikon S-2	66.50	+ your Contax IIA
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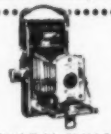

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NIKON S2	NEW	195.00	—	—	499.00	—	345.00	299.50	—
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CONTAX IIA	NEW	199.00	—	—	499.00	—	289.50	254.00	—
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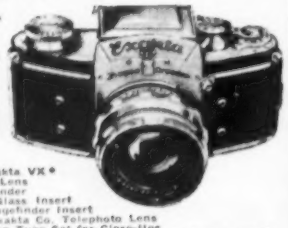

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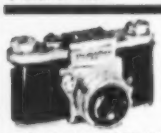

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paced? Does it contain essential information such as a sign, or a humorous facial reaction? With all of your shots clearly in mind you can begin to plan ways in which to organize them for their maximum effectiveness upon an audience. You will begin to recognize certain similarities between shots which will suggest possible groupings and even sequences in the final film. Most important, you will begin to recognize visual aspects within each shot which can be used to link it together in *continuity* with its neighbors. For example, a long shot of the whole of Coney Island may have a roller coaster and a Ferris wheel as outstanding features in the scene. Cutting directly to a close shot of either the roller coaster or the Ferris wheel will then have an immediate, visual logic which would be lacking if the long shot were to be followed by an unrelated shot of, say, a shooting gallery.

Once you have your plan well worked out you can begin to break your rolls down, placing in one group all those shots which you feel belong together. A few paper clips on a wire tacked to the wall can be used as hooks on which to hang your basic groups of shots, letting the excess length lie in a clean cardboard carton beneath. After you have broken your reels apart, leaving each shot its total length, you can begin assembling them on a large reel in their proper order. Temporarily splice them together with patches of scotch or masking tape, overlapping one or two frames and being careful not to cover up the sprocket holes.

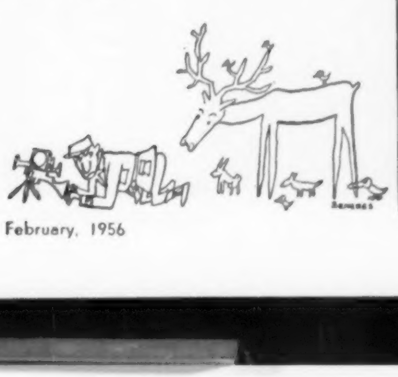
Having begun with our long shot of Coney Island, cutting to a close shot of the roller-coaster ride we have sufficiently established for our audience where they are and what they are looking at. Now let's take them for a cinematic spin on the 'coaster.

As a roller-coaster car is slowly pulled to the top of the first big hump, we may find that merely watching it go up on the screen is not enough to arouse in us any feelings of dread or suspense. We must therefore cut in other shots which will build these emotions. Close-ups of one or two spectators on the ground looking up with open-mouthed anticipation, a girl's hand tightly clenching the handrail in the car (shot in tight close-up while the car is standing on the loading platform), and similar inserts will add to the scene, prolonging the ascent of the car to the top and increasing the tension built up in the audience. Through editing we will have transformed a simple picture of a roller-coaster car going up for its ride into an emotion-packed dramatic experience for our audience. When the car reaches the top, let your audience hang suspended there for a moment by cutting to a bird's-eye view of Coney Island. Then, as the ride itself commences, a quick succession of moving shots taken both from the ground and from the speeding roller-coaster car can be alternated together on the screen to create a sense of motion and excitement. Ride by ride, concession after concession, we can take our audience on a veritable tour of Coney Island.

From time to time close-ups of signs or long shots of the whole scene can be

put into the film to re-orient the audience, keeping them informed of where they are and what they are looking at in close-up. Gradually, sequence by sequence, assemble your "rough cut" until all the shots are in their proper order, each having a logical, visual reason for following the other. When you are finished, you may well have reorganized most of your footage into one huge roll. Having merely put them in order, you must next take out all superfluous or redundant shots and cut the remainder down to their minimum essential lengths, giving each sequence its final sense of pace. This is the time for you, as editor, to take over and quench any feelings of protectiveness which you, as photographer, may still cherish toward your precious scenes. You must view the rough cut with a cold and critical eye. Does it make sense? Do all of the shots work *together*, flowing one into the other to build toward a common goal? Have you left in three too many shots of hot-dog stands just because they were all so well photographed, forgetting that they all repeat the same message for the audience? Is the shot of the Funny Mirror left on the screen long after it will have ceased being funny to the more disenchanted members of your potential public? Are any shots not self-explanatory, needing your explanation to "come across"? Put yourself in the frame of mind of your worst, most-bored audience. Be impatient with slow, unfunny, repetitive and overlong shots. Then, summoning your greatest courage, pick up your scissors and go to work. Constantly reassure yourself that you are not butchering a photographic masterpiece but are, in fact, freeing a crisp, well-placed *film* from its dead surrounding footage.

When you have finished this nerve-wracking job you can splice all the shots together and check your film again on the screen. If a shot still seems longer than necessary, slowly cut it down until you approach the proper length, being careful not to cut it too short. Your film is at last finished. Hundreds of feet of film may lie unused in the wastebasket. However, as a moviemaker, you will have performed your job and the reel that you will have to show for your efforts will be a rich, unified condensation of the very best in your original camera footage. It can be counted upon to bring bravos rather than yawns from your audience. What's more, your camera work will be displayed to better advantage as it ceases to be an end in itself and begins to work toward the total effect of a film. As for the hundreds of feet in the wastebasket: you'll know better now how to film with an eye to the editing bench the next time you go out with your camera and light meter. The lesson was well worth it.—■



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The Bauer 88B

Movie camera with built-in light meter

The new Bauer 88B 8-mm motion picture camera ($139.95) simplifies movie making by incorporating a coupled light meter in its design. By lining up two arrows (a stationary and a movable one) which are seen through the viewfinder, the photographer automatically adjusts his aperture for correct exposure.

Once the photographer has set his frames-per-second dial and his film emulsion speed dial the camera is ready for use. The camera can be panned from light to dark areas, and all the photographer has to do to insure correct exposure is to keep the arrows in line by adjusting a small control lever with the left forefinger.

As the photographer varies his frames-per-second speed and emulsion speed dial, the camera automatically compensates for the change.

Other features of the 88B include:

Shutter speeds. It has four operating speeds—8, 16, 24 and 48 frames per second—and a single exposure device.

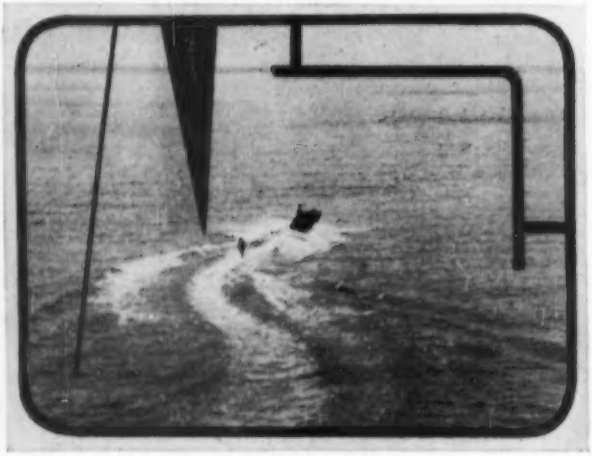
Lens versatility. Telephoto and wide angle attachments can be bought. They fit easily over the normal lens. Supplied with the camera is a ½-inch f/1.9 Schneider Xenoplan Universal Focus lens.

Winding. One wind is enough to expose six feet of film.

Warning signal. When motor is ready to run out, a bell inside the camera rings.

Two other single-lens 8-mm cameras are also being introduced by the Intercontinental Marketing Corporation, 251 Fourth Ave., New York 10, N.Y. They are: the Bauer 88B, ($69.-95), a single speed (16 frames per second) camera; and the Bauer 88 C ($84.95), a multiple speed camera (8, 16, 24, and 48 frames per second).

On all the Bauer cameras is an extra safety device. The door on the film chamber will not close unless the film is properly threaded.—



When thin movable arrow at left is over heavy stationary arrow, the Bauer 88B camera is ready to record scene with perfect exposure. Lines in upper right corner are for parallax correction.

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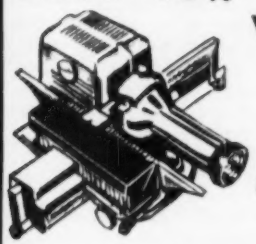

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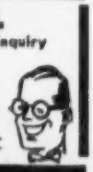

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How to Boost Available Light

(*Continued from page* 105)

areas in the room. Study your room.

Now, let's go to Missouri with Leacock and watch him shoot a documentary film on the *Tobey and Suzie* traveling tent show for *Omnibus*.

"After looking over the show, it is obvious that the lighting has to be so simple that it will not interfere with the audience, actors, or back-stage workers," says Leacock. "Because there are so many different scenes, the smaller the lights we use the easier it will be to set them up and move them around."

The first shots Leacock tackled were the indoor night scenes. His biggest scene, the audience in the tent, headed his shooting schedule.

Leacock spent one night studying the light during a performance. Most of the illumination in the tent came from the stage. Some light spilled off from spots that were high on the center post. He decided to place four flood lamps over the top of the stage, aimed out into the tent. This would boost the stage light. Next he would put spots on the center post to fill in some of the shadows, and light the rear of the tent. With this setup he could shoot almost any type of shot—long, medium, or close-up. (To see his results look at the opening page of this story.)

One scene which shows a man arriving at a railroad station at night gave Leacock little trouble. He decided to hide two RFL2 floods on the top of the street lamp in the scene. The floods produced pools of light around the lamps, but were concealed by the globes of the street lamps. For extra light in the background, Leacock concealed another RFL2 behind the trunk of a tree.

Leacock relies mostly on clamp lights because they are easy to rig and carry. He uses 75-watt reflector floods and spots, 300-watt reflector floods and spots, 375-watt medium beams, and 500-watt reflectors floods and spots. Once in a while, on big setups he will be forced to go to larger lights.

By using these lights so often, Leacock can tell what each lamp he employs will measure in light value at a certain distance. He can light a scene in a matter of minutes. The competent amateur can learn to do the same thing if he gives himself a chance.

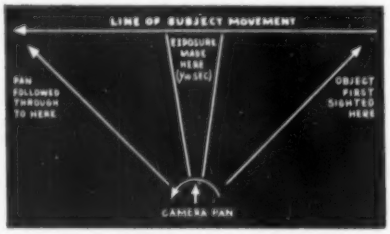
Leacock's lighting system can help you produce better films. All you have to remember is that available light should not be disregarded but helped by your artificial lamps. Try to use this system on your next film and see what it can do for you.—

Action

(*Continued from page* 65)

it permits the eye to "catch up" on all the detail it missed in the event itself; the other is more satisfying because it *is* action itself, it contains the breathless realism of the event.

Australian-born Moore, who is a London freelance, has evolved a technique for panning with a slow shutter speed to interpret action, and he is sometimes called upon to use it on magazine assignments. He admits that it is to some extent a hit-or-miss procedure, but he has eliminated as much as possible of the element of chance, and he has sometimes achieved a masterpiece of blurred-action photography with only one try—like the shot of the walking race, on page 64.



Panning diagram shows how David Moore moves the camera through a 90-degree arc, following through after exposure.

He always uses a Rolleiflex at the eye-level position for this kind of work, and tries to shoot at right angles to the direction of motion. (This was not possible in the broad-jump and horse-race pictures, but the results are still successful.) He has chosen 1/10 second as the slowest speed at which he can be sure to avoid camera movement without support, and this requires him to shoot most out-of-door situations at f/22, the Rollei's smallest aperture. Since he uses a fast film, this sometimes means he must use a filter simply to reduce light intensity. He chooses to use the standard orange filter, which has a factor of six to eight, rather than the neutral density filter which is designed for this purpose.

Moore's technique is a good one to know and to practice. Sometimes a slow shutter can reveal more about action than the fastest speedlight. And when it can, you'll know what to expect of your camera—and in your finished picture.—

Home stretch: Moore's panning technique interprets speed of horses heading for finish.

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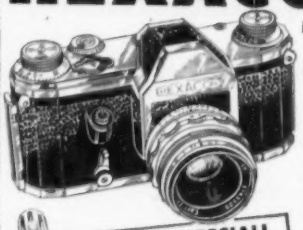

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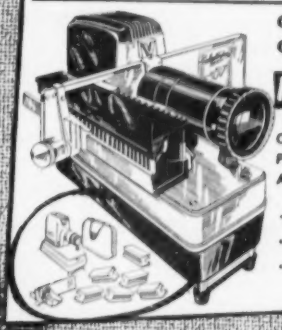

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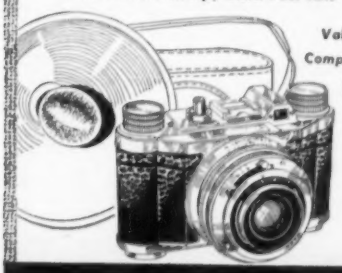

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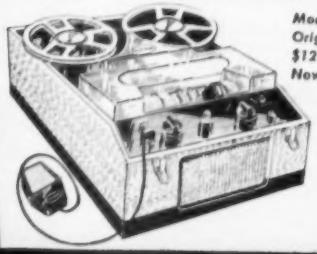

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PEERLESS SPECIAL PURCHASE! SAVE $18.80! BRAND NEW! PRECISION

DeJUR Autocritic Exposure Meter

COMPLETE WITH HANDY CARRYING CASE!
• Simplified Direct Readings — Easy to Use
• Calibrated in ASA Speed Index • Compact
Shipping Weight: 5-Lbs.
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SENSATIONAL CINE VALUE! SAVE $25.45! USED. WORLD-FAMOUS

Bell & Howell '220' 8mm Movie Camera

WITH ULTRA-FAST f2.5 COATED LENS
• Simple "Sun-Dial" Lens Setting • Continuous and Single Frame • Dial Footage Indicator
Shipping Weight: 5-Lbs.
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Argus C-3 35mm Camera Outfit

★ VERSATILE CAMERA ★ CASE ★ FLASHGUN
• Fast f3.5 Coated Lens • Built-in Flash Synch • Coupled Rangefinder • Speeds to 1/300
Shipping Weight: 7-Lbs.
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LIMITED QUANTITIES! ORDER TODAY!

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LEICA IIF, WITH f2 COATED SUMMITAR LENS	$269.00	114.50
LEICA IIF, WITH f2 COATED SUMMITAR LENS	228.00	79.50
LEICA IIIF, WTH f2 COATED SUMMITAR LENS	368.00	148.95

SENSATIONAL MODEL AT A SENSATIONAL PRICE! SAVE $54.00! USED

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COMPLETE WITH COMPACT CARRYING CASE!
• Brilliant 500-Watt Illumination • Blower Cooling System • Needle-Sharp f1.6 Ctd. Lens
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300-WATT LAMP • BLOWER-COOLED!
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35mm SINGLE LENS REFLEX

	New	Used
Exa f2.8 Westar MX ¢*	$ 85.00	$ 40.95
Exakta VX f1.9 Auto Xenon	341.70	188.95
Contaflex f2.8 Tessar Auto RF ¢*	169.00	79.95
Contax D f2 Biotar	199.00	87.95

35mm CAMERAS

Baloey B-2 RF, case and flash	$ 66.50	$ 29.95
Baloey C22 f3.2 Reflex RF ¢*	99.50	55.95
Contessa, f2.8 Tessar ¢*	142.50	71.95
Graphic 35, f3.5¢*, Case & Gun	89.75	52.95
Kodak Flash Bantam f4.5¢*	56.00	22.95
Kodak Pony 828 f4.5 C*	29.50	13.50
Kodak Pony 135 f4.5 C*	29.75	15.95
Kodak Retina II f2 Xenon RF		51.50
Kodak Retina IIA RF MXe*	127.50	67.95
Kodak RF, f3.9, case & flash	75.00	42.95
Kodak Retina III C f2 Xenon ¢	190.00	114.95
Minox IIIS chain & case*	139.50	77.95
Minox II f3.5¢		47.50
Voigt Prominent f2 RF MXe*	220.00	123.95
Voigt Vitessa f2 RF MXe*	127.50	71.95
Voigt Vito II f3.5¢*	54.50	22.95
Voigt Vito III f2 RF MX*	119.50	67.95

LEICA, CONTAX, NIKON, CANON

	New	Used
Contax IIA f1.5 Sonnar ¢*	$374.00	$158.95
Contax IIIA f2 Sonnar ¢*	383.00	177.95
Contax IIIA f1.5 Sonnar ¢*	412.00	187.95
Leica IIIC f2 Summitar ¢		113.50
Leica IIIF f2 Summicron ¢*	336.00	169.95
Leica IIIF f1.5 Summarit ¢*	357.00	173.95

35mm STEREO CAMERAS

Kodak Stereo f3.5¢*	$ 84.50	$ 45.95
Revere f3.5 RFc*	174.50	71.95
Stereo Realist f3.5 RFc*	159.00	62.95
Stereo Realist f2.8 RFc*	198.50	105.95

2¼ x 2¼ REFLEX CAMERAS

Graflex 22 f3.5 C*	$ 93.00	$ 42.95
Hasselblad f2.8 Ektar/1600 C*	476.00	277.95
Ikoflex IIA Auto f3.5 Tessar MXe*	126.00	71.95
Kodak Reflex II f3.5¢		55.95
Rolleicord III f3.5 Zeisse*		58.95
Rolleicord IV f3.5 Xenar MXe*	149.50	63.50
Auto Rollei III f3.5 Xenar MXe*	234.50	132.95
Auto Rollei III f3.5 Tessar MXe*	249.50	142.95
Auto Rollei 2.8 C f2.8 Xenctar MXe*	309.50	174.95

(Symbols: RF Coupled Rangefinder, ¢ Coated, * Flash Shutter)

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Norwood Director	List $32.95, Only 16.95	Gossen Dual Sinon	List $17.50, Only 10.50

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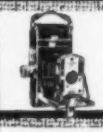

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- Takes 3¼ x 4¼" Prints on Low-Cost Polaroid Film
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COMPLETE WITH 3-BRAND NEW WOLLENSAK LENSES!

- Latest Model with 1" f1.9 Raptar
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★ PRECISION CAMERA ★ CASE ★ FLASHGUN List $91.45!

- f3.5 Coated Ektar Lens
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★ CAMERA ★ CASE ★ FLASHGUN

With f2.9 Coated Trioplan Lens All 3 For Only... **29.95**

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- Parallax Corrected Viewfinder
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B&H 134TA f1.9 Turc	159.95	87.50
B&H 172A f1.9 Mag. Turc	199.95	116.95
B&H 252 f2.3 Montereyc	59.95	26.95
Bolex C-8 f2.8 Tvarc Used	89.50	61.95
Kodak Brownie f1.9c	46.75	30.95
Cine Kodak Reliant f2.7c	84.50	50.95
Cine Kodak Magazine f1.9c	149.50	67.95
Keystone K-32 Olympic f2.5c	79.95	44.95
Keystone Bel Air f2.5 Magc	89.50	45.95
Revere 88 f2.5c	74.00	30.95
Revere 84 f1.9 Turc	147.50	82.50
Revere 40 f2.5 Magc	99.50	50.50
Revere 44 f1.9 Mag Turc	154.50	80.95

8mm PROJECTORS

B&H 221 500 W Case	$ 84.50	$ 43.95
B&H Regent 500 W Case	179.95	80.95
De Jur 750 W Case	159.50	72.95
Keystone K70C 500 W Case	69.50	38.95
Keystone K95, 750 W., Case	119.50	65.95
Revere 85, 500 W., Case	124.50	55.95
Revere 90, 750 W., Case	159.50	84.50

ROLL FILM CAMERAS

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Kodak Chevron f3.5 RF 800 MX*	$198.50	$117.95
Kodak Medalist II f3.5 Ektar c*	304.75	182.95
Polaroid Pathfinder f4.5 RF	249.50	144.95
Super Ikonta A, f3.5 c*	99.00	62.95
Super Ikonta B, f2.8c*	139.00	89.95
Super Ikonta BX f2.8 Tessar RFc	163.00	98.50

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Argus PB 300, case c	$ 48.50	$ 23.50
Argus Automatic 300,c case	66.50	34.50
GoldE Manumatic 300 W.c	58.50	23.95
GoldE Coronet 300 W, case c	44.75	20.95
GoldE Reflex 300 W case 2½c	86.50	47.95
Kodaslide Signet 500 Wc	72.50	44.95
LaBelle 75 Remote 500 W case c	154.95	93.95
Revere 555, 500 W.c	79.50	48.95
Revere 888, 500 W.c	119.50	67.95
TDC Headliner 300W c	49.99	20.95
TDC Streamliner 500W c	84.50	46.95
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(Symbols: RF Coupled Rangefinder, c Coated, * Flash Shutter)

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TWIN-LENS REFLEX CAMERA WITH f3.8 COATED LENS Manufactured by one of Germany's finest camera works!

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LINHOF 4x5 Super Technika

With 127mm f4.7 Ctd. Xenar Lens in MX Compur Synchro Shutter
PLUS UNIVERSAL REVOLVING BACK and EKTALITE FIELD LENS

The Linhof Super Technika has always been regarded as the finest of the large negative cameras . . . because it offered more advantages than any other. These added advantages can now be yours for very little more than the cost of ordinary equipment.

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Illustration shows Multifocus Viewfinder (optional)

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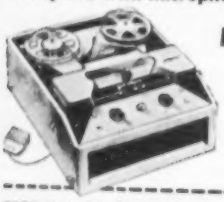

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PICTURES THE JUDGES LIKED continued from page 75

in flight, made with electronic flash. The Stuart shot on page 74 was made on Kodachrome Daylight Type with an Exakta and 240-mm Xenar f/4.5 lens, and a Dormitzer M-100 speedlight. The picture was taken in Tucson, Ariz., in a baited area especially set up for photography. Even though there was bright sunlight, the 1/5,000-second flash froze all motion; the shutter was set at 1/50 second, aperture at f/16.

Alexander Birch, Jr., is a mechanic in the Pearl Harbor Naval Shipyard in Hawaii. His poignant picture of a boy at a toyshop window (p. 75) won first prize (a $25 bond) in a contest sponsored by the shipyard newspaper, the *Log*. He made it with a Leica on Super-XX film, at 1/25 second, f/5.6, in front of a Los Angeles department store at Christmastime.—

Over the bar: in the International Rollei-Jubilee Competition sponsored by the manufacturers of Rolleiflex cameras, this action shot won 500 Deutschmarks for Werner Keinath.

Piggy-back: this graphic candid shot won a $1,000 grand prize in the Activities class of the Newspaper National Snapshot Awards for Mrs. Johan Schonning of Atlanta, Ga.

Collie and daisies: this fine animal portrait by George Sura of Worthington, Ohio, earned the $500 top prize in a contest sponsored by the Gaines Dog Research Center.

Rainy-day portrait: Mrs. Elsie B. Stevens was awarded a $150 third prize in the Activities class of the Newspaper National Snapshot contest with this wistful picture of a neighbor girl. This year, women photographers won more than half of the $17,000 NNSA prize money.

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TDC Headliner 300 Watt, w/Selectron changer	49.99	21.50
LaBelle 55 500 Watt Automatic	95.00	46.95
Argus 300W Auto-Changer	66.50	43.50

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135mm f4.7 Optar ctd.	299	349
135mm f4.7 Xenar ctd.	289	334
135mm f4.5 Tessar ctd.	319	365
150mm f4.5 Xenar ctd.	329	378
150mm f2.8 Xenotar ctd.	519	564
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Top, nationally advertised brands used — Guaranteed.

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w/f1.5 Summarit	185.95

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Eye level view-finder and automatic split image range-finder. Complete with extra ground glass and case

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Range-Finder Glass Only ... 12.75

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Revere 99	f1.9	7mm f2.5	1½" f3.5	$ 97.50
Revere 84	f1.9	7mm f2.5	1½" f3.5	$109.50
Revere 44	f1.9	7mm f2.5	1½" f3.5	$122.50
B&H 134 TA	f1.9	7mm f2.5	1½" f3.5	$127.50
B&H 172 A	f1.9		1½" f3.5	$137.50
Delur Fadematic	f1.9	7mm f2.5	1½" f3.5	$127.50
Bolex H8 Leader	f1.9	7mm f2.5	1½" f3.5	$189.50

EXCLUSIVE GERMAN IMPORT

RAPID WIND 35mm COLOR CAMERA

No other 35mm camera anywhere near this price offers so much ...

- RAPID WIND
- f2.8 CTD. LENS
- COUPLED RANGEFINDER

Reg. $64.95 ONLY $32.50 BRAND NEW

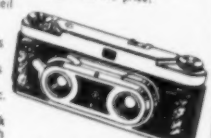
Synchro Shutter • Double Exp. Prev. • All Metal Const. • Compact design • Fully Guaranteed

	Reg.	SPEC.
Leather Eveready Case	6.95	4.95
Synchro Flashgun	9.95	6.95

IF YOU THOUGHT STEREO WAS BEYOND YOUR REACH... MINIFILM DISPROVES IT!

We have at last succeeded in obtaining a stereo camera that is made to professional standards, and priced so that a beginner can afford it. We can't mention the name of this fine German Import but it is the most popular Stereo Camera in Europe. This sale precedes its mass introduction to the American Market. We only ask that you check the features and compare with stereos costing twice the price!

- Matched f3.5 Steinheil Cassar Lenses
- Rapid Wind Lever transports film, cocks shutter, moves film counter and prevents double exposure.
- Speeds to 1/200th sec.
- Flash Synchronization
- Satin chrome and black morocco leather finish



Flash Gun $7.95
Case $8.95

ONLY $49.95 BRAND NEW

10% MONTHLY — 30 DAY FREE TRIAL — 2 YEAR SERVICE GUARANTEE

MINIFILM'S EXCLUSIVE "PUBLISHED TRADE-IN ALLOWANCES" are the HIGHEST OFFERED ANYWHERE!

To get the right deal, HERE'S ALL YOU HAVE TO DO

1. Select the equipment of your choice at the prices shown in column one for new equipment or column two for used equipment.
2. If you have equipment to trade, check if it is represented in listing and deduct the allowance shown for it in column three.
3. Rush your order (and trade-in equipment if you have such) plus your remittance to cover—or instructions to ship C.O.D. for the balance or deferred payment terms as per your instructions.

MINIFILM will immediately forward the equipment you desire. Of course your order will be fully insured. OUR FAMOUS 30 DAY MONEY BACK GUARANTEE AND 2 YEAR SERVICE GUARANTEE ASSURES YOU OF COMPLETE SATISFACTION. .

SPECIAL SALE!! KODACOLOR

FACTORY PACKED — DATED 1957

	120/620	616	127	828
3 ROLLS	$ 3.75	$ 5.25	$3.29	$2.99
6 ROLLS	7.19	10.19	6.19	5.67
10 ROLLS	11.49	15.49	9.99	8.99

WHILE QUANTITIES LAST — LIMIT 10 ROLLS PER CUSTOMER

Lenses for LEICA, CANON, CONTAX, NIKON

	New	Used	Trade-in
50mm f1.5 Sonnar	175.00	98.00	65.00
50mm f2 Summicron¢	156.00	98.00	75.00
50mm f1.5 Xenon¢	98.00	74.00	50.00
85mm f2 Nikkor¢	175.00	89.00	70.00
85mm f1.5 Lithogon¢	199.50	124.00	95.00
85mm f1.5 Summarex	360.00	179.00	140.00
100mm f4 Serenar¢	87.00	38.00	25.00
105mm f2.5 Nikkor¢	152.50	94.50	75.00
135mm f4.5 Hektor		63.95	40.00
135mm f4 Sonnar¢	146.00	78.95	65.00
300mm f5.6 Kilar	149.95	97.50	70.00

Lenses for EXAKTA, CONTAX D, PRAKTICA, PENTACON

	New	Used	Trade-in
85mm f1.5 Lithogon¢	179.50	109.50	85.00
90mm f2.5 Angenieux	94.50	58.50	40.00
90mm f4 Sun¢	19.95	15.50	10.00
135mm f3.5 Angenieux	89.50	54.50	40.00
135mm f3.5 Sun PS	34.50	25.50	15.00
150mm f5.5 Xenar¢	64.95	39.50	30.00
180mm f5.5 Xenar¢	84.95	49.50	35.00
360mm f5.5 Xenar¢	169.50	97.50	75.00
400mm f5.5 Megor¢	134.50	97.00	75.00

ACCESSORIES FOR IMPORTED CAMERAS

	New	Used	Trade-in
Leica M3 Lens Adapter	10.50		
Leitz Reflex Housing	102.00	69.00	50.00
Zeiss Contameter	81.00	42.75	30.00
Univ. Zocm Fdr.	22.50	15.00	9.00

LEICA CONTAX NIKON CANON

	New	Used	Trade-in
Canon IV S2 f1.8	$284.00	$131.95	$115.00
Contax I f2 Sonnar		59.00	35.00
Contax II f2 Sonnar		77.50	65.00
Contax IIA f1.5 Sonnar*	374.00	168.95	145.00
Contax IIIA f2 Sonnar*	383.00	178.95	140.00
Leica IIIC f3.5 Elmar¢		85.50	65.00
Leica IIIF f3.5 Elmar¢*	237.00	126.95	100.00
Leica M3 Body	288.00		150.00
Leica M3 f3.5 Elmar*	348.00		175.00
Leica M3 f2 Summicron¢	447.00		220.00
Nikon S f2 Nikkor¢*		109.00	80.00
Nikon S2 f2 Nikkor¢*	299.50	189.00	145.00

¢...coated *...flash synchronized PS...Preset

35MM SINGLE LENS REFLEX

	New	Used	Trade-in
Alpa 4 f2.8 Alfinon¢*	$239.00	$159.00	$125.00
Alpa 7 f1.8 Switar¢*	459.00	289.00	200.00
Contaflex II f2.8 Tessar	199.00	128.75	100.00
Exakta V f2 Biotar		98.95	75.00
" VX f3.5 Tessar	199.00	124.50	100.00
" VX f2.8 Tessar PS	259.00	152.00	120.00
" VX f2.8 Westanar Auto	239.50	148.95	115.00
" VX f2 Biotar Auto R.F.	392.00	224.00	180.00
" VX f2 Biotar PS	335.00	162.00	135.00
Pentacon f2 Biotar PS	179.00	129.00	100.00
Praktica FX f2.8	69.00	42.50	30.00
" FX f1.9 Primo	79.50	57.00	40.00
" FX f2 Biotar PS	99.95	74.00	55.00
Rectaflex f2 Xenon RF	199.50	119.50	80.00

35MM CAMERAS

	New	Used	Trade-in
Argus C3 f3.5 outfit	$ 66.50	$ 31.95	$ 25.00
Argus C4 f2.8 RF MX	84.50	41.95	32.00
Bolsey B-2 f3.2 outfit	66.50	26.95	18.00
Bolsey C f3.2 Reflex	89.50	38.95	25.00
Bolsey Jubilee f2.8 Setomatic case & flash	69.50	49.50	35.00
Clarus f2.8 RF¢*		37.50	15.00
Kodak 35 f3.5 RF		28.95	20.00
Kod Pony 135 f4.5 C*	29.75	16.95	10.00
Retina IIC f2.8 RF¢	139.50	83.00	60.00
Retina II f2 Xenon RF		52.50	35.00
Konica II f2.8 RF	89.75	57.00	35.00
Minox II f3.5¢		48.95	30.00
Robot IIA f1.9 Xenon	79.50	57.00	40.00

35MM STEREO CAMERAS

	New	Used	Trade-in
Ediza Stereo f3.5¢	$ 69.50	$ 39.50	$ 30.00
Graphic Stereo f4	66.50		35.00
Illoca II f3.5¢*	69.50	48.95	30.00
Kinder f3.5 RF¢*	99.50	58.95	40.00
TDC Vivid f3.5 RF¢	149.50	97.50	65.00

2¼x2¼ REFLEX CAMERAS

	New	Used	Trade-in
Hasselblad Super f4.5	489.50	299.50	225.00
Kodak Reflex I f3.5¢*		36.95	25.00
Rolleicord IV f3.5 Xenar		64.50	45.00
Auto Rollei f3.5 Xenar		74.95	55.00

ROLL FILM CAMERAS

	New	Used	Trade-in
Medalist II f3.5 Ektar	$304.75	$103.95	$ 75.00
Super Ikonta A f3.5 RF	99.00	43.50	30.00
Super Ikonta B f2.8 RF	139.00	63.75	50.00
Super Ikonta C f3.5 RF	114.00	59.00	40.00
Voigt Bessa II f3.5 RF	124.50	68.95	50.00

PRESS CAMERAS

	New	Used	Trade-in
23 Ann. Graphic RF f4.5		$ 81.50	$ 55.00
4x5 B&J Press f4.7 KRF	197.50	89.50	60.00
34 Super D Graflex f4.5	289.50	129.00	90.00
45 Super D Graflex f5.6	299.50	159.00	115.00
2¼x3¼ Graflex B f4.5	129.50	39.00	25.00
3¼x4¼ Graflex B f4.5	149.50	39.00	25.00
2x3 Linhof Super Tech RF 3-lenses Comp.	569.90	312.00	270.00
34 Crown Graphic f4.7 RF	267.45	138.75	100.00
45 Crown 1956 Graphic f4.7 Multifocus RF Rangelite	287.45	189.50	150.00
45 Pacemaker Speed Graphic f4.7 RF¢*	315.45	169.00	130.00

SLIDE PROJECTORS

	New	Used	Trade-in
Brumberger 300W 2¼*	69.50	42.50	30.00
FR Port a View	54.95	32.50	20.00
Kodak Signet 500W	72.50	45.95	35.00
Revere 444 300W*	69.50	28.50	22.00
Revere 553 300W* case	69.50	44.50	30.00
Revere 888 500W* case	119.50	68.95	55.00
SVE Skyline 300W* Auto	39.50	27.50	20.00
TDC Showpak 300W	39.50	27.50	20.00
TDC Professional 750W*	150.00	97.00	70.00
TDC Duo 500W 2¼*	84.50	51.95	40.00
TDC Projector View 200W	77.50	48.50	35.00
TDC Stereo 500W*	169.50	98.50	75.00
Viewlex V33L 300W Auto*	39.50	29.50	20.00
Viewlex Project-O-Matic 300W* Auto, case	59.95		30.00

8MM CAMERAS

	New	Used	Trade-in
Keystone K-35 Tur f1.9	119.95	77.50	60.00
Keystone Bel Air f2.5	89.50	46.95	35.00
Revere 67 f2.8 Mag	119.50	58.50	40.00
Revere 40 f2.5 Mag¢	99.50	51.50	40.00
Revere B61 f1.9 Mag¢	137.50	80.95	60.00
Vistascope Outfit	75.00	57.00	40.00

8MM PROJECTORS

	New	Used	Trade-in
B&H 221 500W case		39.50	25.00
B&H Regent 500W case	179.95	91.95	80.00
De Jur 750W case	159.50	73.50	55.00
De Jur 500W case	69.95	47.00	35.00
Keystone K95M 750W	119.50	66.50	50.00
Keystone K109M 750W	159.50	89.50	75.00

16MM CAMERAS

	New	Used	Trade-in
Auricon Cine Voice f1.9	$749.00	$538.00	$350.00
B&H Mag Tur f1.9		129.00	90.00
B&H 200T f1.9 Mag Tur	244.95	157.00	125.00
B&H 70DL f1.9 Tur¢	365.50	218.00	175.00
Bolex H16 Leader f1.9 Tur¢	269.50	149.00	120.00
Bolex H16 De Luxe f1.4	486.00	295.00	225.00
Cine Kodak Mag f1.9		54.95	45.00
Kodak Special II f1.4	1175.00	789.00	500.00
Elgeet Stereo Outfit	249.50	74.50	50.00
Keystone A-9 f2.5¢	99.50	57.50	40.00
Keystone A15 f1.9 Tur	199.50	127.50	95.00
Keystone f1.9 Mag Tur¢	175.00	104.50	80.00
Revere 26 f1.9 Mag Tur	212.00	105.00	70.00
Zoomar-16 f2.8	600.00	395.00	300.00

ELECTRONIC FLASH

	New	Used	Trade-in
De Jur Port	39.95	27.50	20.00
Dormitzer 2008 Port	275.00	169.50	125.00
Dormitzer 207	140.00	79.00	50.00
Heiland VI Port	141.60	87.50	60.00
Heiland III Port-AC	197.50	97.50	50.00
Heiland V	119.50	69.00	45.00

FREE! New 1956 bulletin loaded with thousands of photo values—send for your copy today!

SAVE $1.00 PER ROLL
LOAD YOUR OWN KODACHROME

For $17.95 you get 28 Ft. of 1957 DATED KODACHROME—(Fresh form Eastman Kodak) enough for 8 - 20 exposure rolls . . . 8 FREE cartridges - 8 mailing bags - FREE Developing and Mounting for 8 rolls whenever ready.

PERFECT RESULTS GUARANTEED

SAVE $1.10 PER ROLL
Load Your Own Stereo Kodachrome

For $23.95 you get 28 Ft. of 1957 DATED KODACHROME — (Fresh from EASTMAN KODAK) — enough for 8 - 15 exposure Stereo Rolls . . . 8 FREE cartridges - 8 mailing bags - FREE Developing and Stereo Mounting for 8 rolls when ready.

PERFECT RESULTS GUARANTEED

35mm GUARANTEED Factory Fresh RELOADS

These Cartridges are Laboratory packed and Quality Controlled by MINIFILM in its own Air conditioned Darkrooms. Twenty and 36 Exposure Cartridges are manufactured daily from 100 ft. rolls received fresh from Eastman Kodak and Ansco. Careful supervision and tremendous sales turn-over insures your getting reloads which are equal in quality and freshness to cartridges factory packed. THE ONLY DIFFERENCE IS THE PRICE.

PRICES INCLUDE DEVELOPING AND MOUNTING

ANSCOCHROME 20 Exp.	ANSCOCHROME 36 Exp.	ANSCO COLOR 20 Exp. Rolls	ANSCO COLOR 28 Ft. Sealed Cans	EKTACHROME 20 Exp.	EKTACHROME 36 Exp.
1 Roll 2.50	1 Roll 3.75	3 for 4.95	1 Can 11.95	1 Roll 2.50	1 Roll 3.75
3 for 6.65	2 for 6.95	6 for 9.59	2 Cans 23.39	3 for 6.95	2 for 7.35
5 for 10.50	3 for 10.29	10 for 15.49	3 Cans 33.95	5 for 10.95	3 for 10.50

Include 20¢ for Postage and Handling.

MINIFILM COLOR LABORATORIES
SPARKLING COLOR PRINTS

2x3¼ —Usually 35¢—Our Price 20¢ ea.
2½x3¼—Usually 54¢—Our Price 25¢ ea.
3¼x4 —Usually 75¢—Our Price 47¢ ea.
4x5 —Usually 1.00—Our Price 57¢ ea.
5x7 —Usually 1.50—Our Price 89¢ ea.
8x10 —Usually 3.00—Our Price 1.85 ea.

24 HR. COLOR FILM DEVELOPING

35mm Ansco Color mtd. $1.00; 3 for $2.70
35mm Ektachrome mtd. $1.25; 3 for $3.25
35mm Anscochrome mtd. $1.25; 3 for $2.75
120/620 Ektachrome or Ansco........$1

KODAK'S MIRACLE TRI-X
35mm 20 Exp. 6 Rolls $1.99—10 for $3
36 Exp. 4 Rolls $1.99—7 for $3.15
50 feet $2.45 — 100 feet $3.95

KODACHROME STEREO
PRICE INCLUDES DEV. & STEREO MTG
20 EXP. — 3 ROLLS $9.95

Prices Include Developing Mtg. & Mailing Bags →

KODACHROME
DATED LATE 1956
35MM

20 EXP.	36 EXP.
3 ROLLS $7.49	1 ROLL $3.95
5 for 11.99	3 for 11.29
10 for 22.99	6 for 17.99

SUBJECT TO PRIOR SALE
LIMIT—10 ROLLS PER CUSTOMER

LOAD YOUR OWN 35mm ANSCO CHROME
(SO QUICK — SO EASY — SO ECONOMICAL)
A CHILD CAN LOAD A ROLL IN 90 SECONDS
A 20-EXP ROLL COSTS ONLY $1.11

1 A Daylight Bulk Film Loader
2 28 ft of Ansco Chrome—enough for 8 rolls (tongued—frame numbered—1956 date)
3 8 Brand new casettes 4 8 Mailing bags

ALL FOR ONLY 8.88

28 ft. 35mm ANSCOCHROME
Incl. Film Loader, 8 Carts, 8 Mail Bags —Developing & Mounting for 8 rolls $14.95

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Address ....
City.............. Zone.... State........
Please send TIME PAYMENT & Information.

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FINER 2½ x 3¼ (2X) COLOR PRINTS AS LOW AS 20¢

Compare our prices! Compare our workmanship! Compare our service! You'll agree COLOR KING prints are the very best!

SAVE!

BEST QUALITY! FINEST WORK!

Prints From Transparencies!

2½ x 3¼ (2X) ..... 25¢
(Only 20¢ ea. for any 10)
3 x 3 ..... 40¢
3 x 4 (3X) ..... 40¢
4 x 5 ..... 50¢
5 x 7 ..... 1.00
8 x 10 ..... 2.00

PROCESSING
● KODACOLOR PRINTS .... 32c ea.
● ANSCOCHROME, Anscocolor, Ektachrome — 35mm (20 Exp.), 120, 620 — 90c
● EKTACHROME, New High Speed, Type E — 35mm (20 Exp.), 120, 620 — $1.00

DUPLICATE SLIDE SERVICE 35mm slides ..... (20c ea. for any 10) 25c ea.

Get Glamorous Color Prints!
(Luxurious)
MAT-TONES

MAT-TONES have the deluxe-finished, non-glossy texture of studio portrait prints. Try a sample order. You'll be delighted with the results. Prices below are for prints from transparencies only. Kodacolor MAT-TONE prints 40¢ ea. Money back guarantee!

See the Difference!
(Prices from transparencies only)

2½x3¼ (2X)	35¢	4 x 5	75¢
3 x 3	60¢	5 x 7	$1.50
3 x 4 (3X)	60¢	8 x 10	3.00

Save! Brand New
EKTACHROME ASA 32
and
ANSCOCHROME ASA 32
20 Exposure Magazines! Daylight Only!
NOT SURPLUS! NOT AERIAL!
3 ROLLS only $3.95
List price $5.55! Save over 25%!

Send cash with order. Satisfaction guaranteed or money back!
COLOR KING LABS
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Whether you're shopping around or just want a change of pace in your hobby:

RENT A CAMERA

By CHUCK ANDERSON

MOST photographers either overlook the fact or don't know that just about any type of camera can be rented for only a few dollars. Most dealers handling used cameras are willing to rent most of the models he has on hand, excepting possibly the latest ones, at an amount that often is less than the cost of the film used during rental.

Those models which are most often borrowed, and movie projectors, generally rent at a set price; rental for other types vary and is usually determined at the time of each loan. You won't, however, be able to try out a new Leica or Graphic, for instance, unless the dealer knows you fairly well. A deposit is usually requested, though this may be waived if you're a regular customer or can show sufficient identification.

Many dealers are prone to loaning a camera at a reasonable price if the renter buys all the film he will be using. It doesn't do any harm to buy all necessary printing paper and processing chemicals then, either.

The real fun of using rented cameras is in getting practical experience with all different types. There is an increasingly wider variety of cameras on the market today that goes hand in hand with the many kinds of photography being done today. Available-light photographers and many color photographers use a 35-mm almost exclusively; other color photographers stick to a 4x5. Many twin-lens cameras find their place in child photography. Tabletop, scenic, and portrait photography often call for a press or view camera; and now there are even cameras designed for underwater use. But many a photographer who starts out with a particular camera, and is restricted to doing the kind of photography their camera is best suited for, stays with that camera, one good reason being that the price of a good camera of another type represents a large investment. And there are moments in every photographer's life when he'd like to try his shutter hand at another type, with or without the intention to buy. Renting offers the opportunity to try out different equipment at length and at leisure. If he decides to buy, he knows what he's getting.

The most commonly rented cameras are probably 35-mm's, borrowed by photographers who want color slide transparencies, particularly because they can be made at a cost not too much more than what it takes to purchase, process, and print black-and-white film. The owner of a large camera can more than amortize the rental charge by shooting an assignment with a smaller, more economical model. Many magazines prefer 4x5 color and it may prove a wise expenditure to reshoot some of your best 35-mm slides in this larger size. The less common cameras — sub-miniatures, underwater, or 11x14—are available too. And wide-angle and telephoto lenses can be added for special jobs.

Whatever your reason for wanting to use a camera temporarily—whether for a vacation, weekend outing, or a special job assignment—renting is an inexpensive means to a profitable end, either pleasure or vocationwise.—

NO GIMMICKS AT PENN

PENN only advertises equipment it can deliver at prices shown.

Now Your Home Movies Can Talk!

ADD LOW COST SOUND

to your 8mm & 16mm films!

Only PENN brings you this Professional Cinesone Sound Outfit —Sold Nationally at $199.75

Only **$99.50** for 8mm or 16mm, Specify

WHAT IS IT? A complete magnetic sound recording outfit that converts virtually every 8mm or 16mm silent projector to sound—for both recording and projection.

HOW DOES IT WORK? The complete recording head snaps onto your projector just like any 300 foot, or larger, film reel. You record on any sound-striped film as you project the film—playing back the perfectly synchronized sound and picture immediately. Penn or your local store can quickly and inexpensively sound-stripe your film, old or new.

COMPLETE CINESONE OUTFIT—including recording head adapter, amplifier, speaker, microphone and carrying case. only at Penn

Reg. $199.75 **$99.50**

Illustrated circular on request. The Cinesone Sound Outfit may be purchased with time payments. Inquiries invited. If you don't own a projector, write for Penn's combination price for the CINESONE outfit plus any projector of your choice.

Compare FLEXARET IIIa

with Automatic Self-Timer—MXV shutter

FEATURE-FOR-FEATURE

with leading higher-priced cameras

Reg. 109.50 SPECIAL **$49.50**

	FLEXARET $49.50	Camera A $74.50	Camera B $99.50	Camera C $134.50
f3.5 ctd. 4 element lens	YES	NO	NO	YES
Full flash synch	YES	NO	YES	YES
Automatic film stop	YES	NO	YES	YES
Automatic self-timer	YES	NO	YES	YES
9 shutter speeds	YES	YES	YES	YES
Sports finder	YES	NO	NO	YES
Lightweight const.	YES	NO	NO	NO
Double safety lock back	YES	NO	YES	YES
Film transport crank	YES	NO	YES	NO

FREE FLASH GUN WITH EACH FLEXARET

Flexaret IIIa with self-timer (not automatic) Reg. 99.50 SPECIAL—$43.95

SAVE $150.00! BRAND NEW!

ROBOT STAR with

Schneider Xenon f1.9 ctd. lens

- Uses standard B&W or color 35mm film cartridges!
- Amazing rapid sequence camera for action shots
- Takes 5 exposures per second
- 24 exposures on one setting
- 55 exposures on 36 exposure film
- Motorized
- Automatically moves film and resets shutter

Reg. $259.50 SPECIAL **$99.50**

BRAND NEW!
Famous 35mm

NIKON S-1

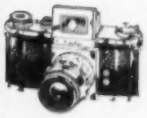
with fabulous Nikkor f1.4 ctd. lens

- Built in synch. for flash and electronic flash
- Speeds from 1 to 1/500 sec.
- Cpld. film transport and shutter cocking
- Interchangeable bayonet lens mount

Reg. 299.50 **$188** Disc model

with f2 ctd. Nikkor lens Reg. 269 . . . 149.50

SAVE $63.55! BRAND NEW!



Catalina

35mm SINGLE LENS REFLEX

Tessar f2.8 ctd. pre-set lens or Primoplan f1.9 ctd. pre-set lens

- Two separate P.C. sockets for full synch. (flash and electronic flash)
- Focal plane shutter
- Automatic shutter cocking and film transport
- Accepts any flash unit with standard Prontor Cord
- Reflex Finder

Reg. $139.50 SPECIAL **$75.95**

100mm f4.5 ctd. telephoto lens $17.95
Eye-level prism finder for above $14.95

SAVE $110.00! BRAND NEW! REGISTERED!

PENTACON

with fully automatic f2 ctd. Westagon lens

- Focal plane shutter
- Speeds from 1 to 1/1000 sec.
- Automatic shutter cocking
- Built in full synch.
- Self-timer
- Prismatic eye-level finder

Reg. $259.50 SPECIAL **$149.50**

100mm f4.5 ctd. Telephoto lens, Reg. $34.95 $17.95

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ROTO DRYER

- 12x29" • Automatic squeegee
- Thermostat heat control with neon light • Polished chrome

Reg. $27.50 SPECIAL **$21.95**
Model A-2, 24 x 48", Reg. $49.95 . . . **$39.95**

BRAND NEW!

EYE LEVEL PRISM FINDER for EXAKTA & EXA

SPECIAL **$23.95**

Split image range-finder prism glass for above $8.95
Leather case for above 1.95

BRAND NEW! MODEL 45M

BESELER ENLARGER

(16mm to 4 x 5")

- Automatic Electric Controls
- Lockable Lens Stage
- Tilting Lens Stage
- Built-in Filter Drawer
- Absolute Rigidity
- Lifetime Guarantee

Includes Packing and Shipping Costs. FREE—We will mount your lens and flange free with your order of a Beseler 45M! **$198.75**

Prices slightly higher west of the Rockies.

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2 x 2 Slide Projector with Change-O-Matic

- 300 watt • Motor fan cooled
- 5" Luxtar ctd. lens • Takes all 2x2 slides in any type mount or binder, intermixed.

Additional trays . . 3 for $2.49 Reg. $67 **$39.50** W/TRAY

FREE! 2 SETS OF METAL REELS AND CANS

WITH **MANSFIELD ACTION EDITOR**

and Table Top Movie Projector

- Automatic splicer • 800 ft. rewinds • Brand new • All metal die cast viewer • 2¼x3¼ screen with glass prism shutter

8mm **$23.50** 16mm **$24.95**

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SPOT-O-MATIC

Enlarging Meter

Reg. $12.50 SPECIAL **$9.45**

- Tells paper contrast, exposure time
- Eliminates test strips & spoilage
- Extremely sensitive
- Easy to read

SAVE $10! BRAND NEW!
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EXPOSURE METERS

For Flash or Electronic Flash

The perfect solution to accurate exposure in flash photography. Amazingly accurate. As easy to use as a rangefinder.

Reg. $12.95 SPECIAL . . . **$2.95** Case $ .98

FRESH FILM, FACTORY SEALED

KODACHROME

1956 Date • Kodak Processing Included

	Reg.	SPEC.
8mm roll (dble.)	$3.75	$2.82
8mm mag. (dble.)	4.65	3.82
16mm x 100' roll	10.40	8.12
16mm mag.	6.95	5.41
Bolex 8mm x 100' roll	13.60	10.70

Sold only in lots of 3 or more
Prices are per roll—Spec. Daline or Indoor

EKTACHROME

High Speed ASA32 • 1956 Date • No Processing

	Reg.	SPEC.
*35mm x 20 exp.	$ 1.85	$ 1.45
35mm x 100 ft.	40.00	31.25
*828 Bantam	1.00	.79
*120 or 620	1.25	.98

*Sold only in lots of 6 or more
Prices are per roll—Spec. Daline or Tung.

ANSCOCHROME

High Speed Type • Daylight • No Processing

35mm x 20 exp.	$1.45
29' easy loader, 8-20 exp. rolls	9.95
120 or 620	1.25
828	1.00

Reg. $38.50 SPEC. **$22.50**

SAVE $6.00! BRAND NEW!

MORSE G-3

Daylight Processing Tank

- Takes up to 100 ft. of double 8, 16, or 35mm film • Processes negative, positive or reversal film • Plastic tank, cover and stainless steel reels

Standard Double

CUT FILM HOLDER

Fits all Graphics and other cameras with standard press-type spring backs.

	Reg.	SPEC.
2¼ x 3¼	$ 3.65	$ 2.70
3¼ x 4¼	3.90	2.80
4 x 5	4.12	2.90
5 x 7	4.71	3.30
*8 x 10	13.00	10.40

Minimum Order—3 holders *No Minimum Required

SAVE 40%! BRAND NEW!

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- For Leica and Canon cameras
- Couples to Range-finder

	Reg.	SPEC.
28mm f3.5	$120.00	$72.00
35mm f2.5	99.50	59.70
90mm f1.8	149.50	89.70

SAVE 39% — #5 AND #25

FLASHBULBS

Case of 130, Reg. $14.40

SPECIAL . . . **$8.75** (specify)

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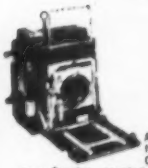
Leica M3 with Summarit f/1.5	$468.00
Leica M3 with Summicron f/2 lens	447.00
Leica M3 with f/3.5 Elmar lens	348.00
Leica M-3 Body	298.00
Leica IF body, built-in flash	64.00
Leica IIF body, built-in flash	120.00
Leica IIIF body, built-in flash self-timer	180.00
Leica IIF with f/3.5 Elmar	177.00
Leica IIIF with f/2 Summicron	338.00

	M-3	Standard
35mm Summaron f/3.5	$ 99.00	$ 90.00
Fuji 35mm f/2 W.A.		179.50
Fuji 50mm f/1.2		299.50
50mm Elmar, ctd. f/3.5	90.00	87.00
50mm Summarit, f/1.5	190.00	177.00
50mm Summicron f/2	159.00	156.00
85mm Summaron, f/1.5, Chrome		360.00
90mm Elmar f/4, Chrome	93.00	90.00
90mm Elmar f/4, Collaps. mt.	150.00	
125mm Hektor, f/2.5		147.00
135mm Hektor, Chrm., f/4.5	141.00	135.00
135mm Hektor sbt. mtd.	121.50	120.00
Leica Meter	30.00	17.50
200mm Telyt f/4.5		196.00
400mm Telyt, f/5		450.00
Leica reflex housing		102.00
Leica Flash Gun		24.00
Stereo Outfit for Leica	297.00	284.00



1956 PACEMAKER GRAPHIC OUTFITS

All brand new, latest models, with factory guarantee! Includes: • Graflok back • Extalite screen • new Graphic coupled rangefinder with Rangelite and automatic parallax viewfinder • new full image wire finder • Graflite 3 cell flash gun • deluxe case • film pack adapter • roll film holder • 6 cut film holders • adapter ring • sunshade • 4 filters. Prices below include all this extra equipment! Easy payments available!

Size	Coated Lens in Shutter	Speed Graphic	Crown Graphic
2¼ x 3¼	101mm Ektar f/4.5 (1/800 sec.)	$338	$300
	105mm Tessar f/3.5	355	306
	105mm Ektar f/3.7	343	294
4 x 5	127mm Ektar f/4.7	354	305
	135mm Schneider Xenar f/4.7	337	291
	135mm Schneider Xenar f/3.8	388	344
	135mm Optar f/4.7	354	305
	135mm Tessar f/4.5	370	328
	150mm Schneider Xenar f/4.5	381	334
	150mm Tessar f/4.5	381	334
	150mm Tessar f/3.5	448	400
	150mm Schneider Xenotar f/2.8	568	524
	152mm Ektar f/4.5	371	327

New Graphic rangefinder is manufactured for 4 x 5 cameras only. 2¼ x 3¼ outfits are supplied with Kalart coupled rangefinder.

TRADE UP!

YOUR PRESENT CAMERA IS WORTH MONEY AT BROOKS. Take advantage of these buys or write us what you want, what you have to trade:

EXAKTA VX—your old model VX and $48.50
RETINA IIIC—your Retina IIA and $79.50
CONTAX IIA or IIIA—your Contax IIA or IIIA X Sync and $69.50
ROLLEIFLEX—your old Rollei MX and $66
ROLLEICORD V—your Rolleicord IV and $49.50
NIKON S2—your old Nikon S and $109.50

All Prices Subject to Examination of your Equipment

NEW—DISCONTINUED

	Reg.	NOW
New VX Exakta w/f/2.8 Preset Tessar		$179.00
New VX Exakta with f/3.5 Tessar lens		149.00
Exakta penta prism w/rf	85.00	38.95
Praktica FX f/1.9 preset Primoplan	159.50	78.95
Flexaret Synch. f/3.5	99.50	48.95
Ditto Camera f/3.5	99.50	48.00
105mm Ditto Telephoto	39.50	29.95
Rolleicord IV with f/3.5 lens		98.50
Bolsey B2 f/3.2 lens	96.50	39.95
Bolsey B2 f/3.2 with case and flash	69.50	45.95
Bolsey C reflex f/3.2 lens	89.50	48.50
Bolsey C f/3.2 with case and flash		59.95
Contax IIA f/2 X, synch.	336.00	228.00
Contax IIIA f/1.5 X, synch.	412.00	298.00
Super Ikonta A f/3.5 Tessar X, synch.	99.00	69.00
Super Ikonta B f/2.8 Tessar X, synch.	139.00	99.00
Nikon 1954 model, w/f/1.4 Nikkor	299.50	189.00
Robot Star f/1.9 lens	249.00	99.00

CONTAX D

Contax D w/f/2.8 preset Tessar $94.00
Contax D w/f/2 preset Zeiss $124.00
Eveready case $ 12.00
Macro-Kilar 40mm Model D, foc. infinity to 2"—f/3.5 $114.00
Model E, same as above, inf. to 4" 135mm Albinar f/4.5 $20.00

PRAKTICA

Praktica FX f/1.9 preset Meyer $78.95
Praktica FX f/2.8 preset Tessar $76.95
Case 8.95

RETINA IIIC

f/2 Xenon lens, speeds to 1/500 sec., new light value coupled shutter and lens opening, and built-in exposure meter. Bayonet-mount construction enables you to change front elements, substituting wide-angle or Telephoto lenses $190.00

RETINA IIC, Xenon f2/8 lens $139.50

Tele Attachment $ 82.50
W. A. Attachment $ 62.50

REVERE 888

Fully auto 500-watt slide projector with more wanted features than any other on the market. Changes slides automatically, fast, medium or slow speeds, built-in pointer, iris fade lever, fast f/3.5 lens. Many other features $119.50

REVERE 955—Auto-mag 2 x 2 500-w $78.50

REVERE 553—Same features "555", 300-w $69.50

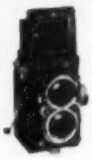
SWEDISH HASSELBLAD 1000F

2¼" x 2¼" single lens Reflex Camera interchangeable roll film magazines, automatic shutter setting. $378.50

New extreme wide angle Hasselblad w/38mm Biogon f/4.5 $489.50
Finder 48.50
Hasselblad Bellows for close-up work $119.00

Lenses:
135mm Zeiss Sonnar lens f/3.5 $279.50
250mm Sonnar f/5.6 $290.50
Zeiss W.A. Distagon f/5.6, with case $189.50

1956 ROLLEIFLEX AND ROLLEICORD



w/Tessar f/3.5 lens $232.50
w/Xenar f/3.5 lens 217.50
Rolleiflex 2.8D w/Schneider Xenotar f/2.8 lens $281.50
Rolleicord V w/Xenar f/3.5 lens, full synch. light value $134.95
Case for 2.8D 18.00
Case for 3.5 17.00
Rollei Flash Gun 39.95

New 1955 EXAKTA VX

One of the world's greatest 35mm single-lens reflex cameras. With waist level finder

Exakta VX w/f/1.9 Schneider Xenon fully auto lens $381.70
Exakta VX w/f/2 Westagon, fully auto $289.50
Exakta VX w/f/2.8 Westanar fully auto lens $239.50
Exakta VX w/auto Biotar f/2 $357.00
Exakta VX w/auto f/2.8 Tessar $278.50

AUTOMATIC LENSES

50mm f/2.8 Auto Tessar $160.50
50mm f/2.8 Westanar 80.50
50mm f/2 Westagon 110.00
50mm f/1.9 Xenon 190.50
58mm f/2 Biotar 164.50

WIDE ANGLE

28mm f/3.5 Angenieux $120.00
35mm f/2.5 Angenieux 90.50
Macro-Kilar 40mm Model D, foc. infinity to 2" f/3.5 $114.00
Model E, same as above, inf. to 4" $89.95

TELEPHOTO

90mm f/2.5 Angenieux $ 94.50
135mm f/2.5 Angenieux 170.50
135mm f/2.8 Pre-set Steinheil Quinar $149.50
135mm f/3.5 Angenieux 69.50
135mm f/4 Pre-set Zeiss Triotar $ 85.00
150mm f/5.5 Meyer Tele-Megor $ 50.95
180mm f/5.5 Meyer Tele-Megor $ 82.95
250mm f/5.5 Meyer Tele-Megor $132.15
400mm f/5.5 Meyer Tele-Megor $190.50
300mm f/5.6 Kilar $149.95
400mm f/5.6 Kilar 239.95

Discontinued EXAKTA VX Cameras While they last!

Exakta VX w/f/2.8 Tessar, Preset $179.00
Pentaprism R.F. 38.95

BOLEX H-16 SUPREME

Bolex H-8 Leader with Lytar coated f/1.9 lens $299.50
Bolex H-8 De Luxe with Switar coated f/1.5 lens $436.25
Bolex H-16 Leader with Lytar coated f/1.9 lens $268.50
Bolex H-16 Supreme w/Lytar coated f/1.9 lens $394.00
Bolex H-16 Supreme w/Switar coated f/1.4 lens $910.00
Bolex H-16 Supreme with Switar coated 3/1.4 lens, Switar 16mm coated f/1.8 lens, Switar 50mm coated f/1.4 lens and deluxe H-1 case complete $770.00
Bolex C-8 w/Lytar ctd. f/2.5 lens $ 99.95
Bolex C-8 w/Lytar ctd. f/1.9 lens 129.95
Bolex B-8 w/Tyar ctd. f/2.8 lens 119.50
Bolex B-8 w/Lytar ctd. f/1.9 lens 149.50
Bolex B-8 w/Switar ctd. f/1.5 lens and Tyar 1½" (telephoto ctd. f/2.8 lens) $274.00
Bolex Electric Camera Drive 49.50
Bolex Tripod 49.50
Bolex Titler and Special Effects Kit 300.50
Bolex Rackover 27.50
Bolex M-8 Projector with case 189.50
Bolex G-8mm-16mm Projector 330.50
Pan Cinor Zoom coated f/2.8 lens (for 8mm) $149.50
Pan Cinor Zoom coated f/2.8 lens (for 16mm) $348.50
Pan Cinor w/case 17½ to 70mm thru lens view $449.50
Switar 16mm f/1.8 w/a 96.50
Switar 50mm f/1.4 189.00

16mm CINE-VOICE

AURICON CINE-VOICE

popular-priced 16mm camera that photographs a sound track, perfectly lip synchronized with the picture — to be played on any 16mm sound projector. Single-lens model. New $695.00, used $325.00

Brooks has largest inventory of professional and amateur movie equipment in the west!

AURICON PRO-600

16mm optical-sound-on-film; self blimped, sync motor drive for single or double-system recording. Electromatic take-up, film-flow without friction clutches or belts. Various combinations of accessories available $1185.00

AURICON "SUPER-1200"

16mm sound-on-film camera (self-blimped) with 3-lens turret for "C" mount lenses. 1200 ft. capacity for 33 minute recording time $3319.25

AURICON PAN-TILT professional tripod, weight 27 lbs. $325.00

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THE TRULY COMPLETE CAMERA

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The VITESSA "L" is the only 35mm automatic camera with so many quality features. Press the "magic levers" and the picture is taken, the film transported, and you're set for the next shot. The Light-Value Synchro Compur Shutter automatically adjusts diaphragm as the shutter speeds are changed. The built-in Exposure Meter gives correct readings instantly, accurately. The Voigtlander high-efficiency lenses are beyond compare for true rendition of color and black-and-white from edge-to-edge. And there are many other features, created by Voigtlander, oldest name in photography, that make the VITESSA "L" the most complete 35mm.

Voigtländer

VITESSA "L" AUTOMATIC

35MM CAMERA

Voigtländer *because the lens is so good*

With 2-inch (50mm) Voigtlander ULTRON f/2 lens, flash synchronized for all speeds from 1 second to 1/500th.....**$159.50**

Same as above, but with Voigtlander Color-Skopar f/2.8 lens.....**$139.50**

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HOT BARGAINS FOR COLD CASH at FREESTYLE!

ANSCO Daylight Color
35mm x 27½', Perfect Results Guaranteed, $4.95
35mm x 50' ..... $8.95 35mm x 100' $16.98
(Shp. wgt.—27½' 6 oz. 50' & 100' 1 lb.)

8 x 10 ANSCO PRINTON
12 Sheets Perfect Quality $4.95

VARIGAM DuPont's Most Popular Paper 100 Sheets ... $2.98
10 x 10 Enlarging Paper Single Weight, S. M. 250 Sheets ... $7.00
(Shp. wgt.—100 Sheets—4 lbs. 250 Sheets—9 lbs.)

ENLARGING PAPER
Haloid 10" x 10" D.W. Semi-Matte, No. 2, 100 sheet package ..... $3.95 ea.; 2—$7.50
(Shp. wgt.—5 lbs. ea.)

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10 x 10 S. W. Glossy, CONTRAST 2—Excellent Quality (5 lbs.) 100 sheet box $2.98
7x8 ⅝ EK. Royal Bromide F2 SW glossy 100 sheet box ..... $1.79; 3 boxes $5.00
(Shp. wgt.—3 lbs. and 8 lbs.)
5 x 7 Halobrome—S.W. Glossy, F 2 ..... 100 Sheets $1.49
(Shp. wgt.—2 lbs. & 5 lbs.) 300 Sheets $4.00

GUARANTEED TO 1957 • SAFETY • PLUS X • SUPER XX • INFRA-RED • ANSCO SUPREME • BACKGROUND X
35mm x 100' ROLL . . . . $1.98 ea.
Save Even More! . . . . . 3 Rolls $4.50
(Shp. wgt.—1 lb. per roll)

35mm Bulk Film Loader, plus 12 empty E. K. cartridges $5.50. With 100' Roll Dupont No. 2 (ASA 50) $6.50
(Shp. wgt. 2 lbs.)

FRESH KODAK TRI-X FILM
Dated 1957. ASA 200. 35mm x 100' $3.25
(Shpg. wgt.—1 lb. per 100') ..... 2 Rolls—$9.00

2 x 2 and STEREO MOUNTS
100—2x2 (35mm) Mounts, $1.75 ..... 500 for $ 4.50
100—Stereo Mounts, $3.75 ..... 500 for 10.00
(Ship. wgt.—100 mounts 1 lb.)

E. K. Fine Grain Positive '56 Date. Make your own B-W transparencies! 100' roll $1.49 ..... 2 rolls $4.00
(Shp. wgts.—100 ft. roll ½ lb. each, 400 ft. 3 lbs.)

K-20 AERIAL CAMERA
With 6¾" f4.5 lens. Perfect for rapid-sequence action. Makes 4x5 negative. Hand held. Lightweight. Shutter speeds to 1/500 sec. Fully Guaranteed. (Wgt.—29 lbs.) $149.50
FREE—6 Rolls 5½"x20' Super XX or TriX Film

16mm KODACHROME 16mm x 100' Daylight Roll. Perfect Quality. We scooped the field on this terrific value! FREE Kodak Processing.
1 Roll (1 lb.) $6.95 3 Rolls (2 lbs.) $20.00

16mm x 100' KODAK SUPER X and ANSCO HYPAN MOVIE FILM . . . FREE PROCESSING INCLUDED ..... each $2.98
(Shpg. wgt.—1 lb. each) ..... 4 for $10.95
Above Film Without Processing—$1.19 ea.; 6—$5.95

750 Watt Projector Bulbs—G.E. or Westinghouse, ea. $1.98
(Shpg. wgt.—1 lb. ea.; 3—2 lbs.) 3 for $5.00

√ √ 16mm x 50' Super X √ √
12 rolls—$4.95 28 roll can—$8.95, 2 cans—$17.00
(12 rolls 2 lbs.—1 can 5 lbs.)
Empty Magazines. 59¢ ea. ..... 12 for $6.00
(1 lb. ea. 12—7 lbs.)
E. K. SUPER X 16mm x 50' MAGS. Free Processing. (Wgt. 1 lb. each) ..... $2.39 each; 2 for $4.50

CUT FILM AND FILM PACKS
2¼ x 3¼ Plus X and Super XX Film Packs—89¢ ea. 5—$3.95; 10—$7.50
(Shp. wgt.—6 oz. ea.)
4x5 Cut Film—Ansco Triple S Pan (ASA 200), Ansco Isopan (ASA 80), and EK. Ortho X (ASA 125).
New Low Prices!
3—25 sheet boxes $3.50; 6 boxes $8.98
(3 boxes 2 lbs.—6 boxes 4 lbs.)
★ 4 x 5 Ansco Color — Indoor, 12 sheets $2.75
24 sheets 5.00
FREE! Daylight Conversion Filter with above purchase.
8 x 10 Ansco Color—Daylight or Tungsten—(Shpg. wgt. —2 lbs.) 10 sheets pkg., $4.50; 3 pkgs. $11.00

HI-SPEED 35mm EK Day-Aero EKTACHROME
27½' Roll $3.95—37½' Roll $4.95—75' Roll $8.95
8½" x 40' roll. (Shpg. wt.—3 lbs.) $3.00
Ektachrome Kits | 1½ Gal. Developing Kit 1.50
For home processing | 4½ Gal. Developing Kit 2.50
(Shp. wgt. 1½ gal.—5 lbs. 4½ gal.—12 lbs.)

AERIAL FILM Cut Your Own Sheet Film For Pennies!
9½" x 20' E.K. Super XX and Tri X (2 lbs.) 9.98
9½" x 50' E. K. Tri X (Weston 200) ..... ea. 1.98
(Shp. wgt. 3 lbs ea., 3—8 lbs.) ..... 3 for 5.50
9½" x 200' E. K. Tri X '54 date 12.98
(Quantity Prices on Request)
Be sure to include postage. All C.O.D.'s 30% DEPOSIT. Items not marked fresh are past date but fully guaranteed.

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photo tips— short cuts to better pictures

For Darkroom Gadgets

A wire rack such as is used for holding phonograph records can be very useful in the darkroom, as illustrated here. It will hold masks, dodgers, negative carriers, scissors, and a variety of other items, keeping them neatly in order and quickly available when you need them. These racks are inexpensive, and can be purchased in shops which handle phonograph records. They are available in several styles and suitable sizes.—*Fritz Snyder, Dover, New Jersey.*

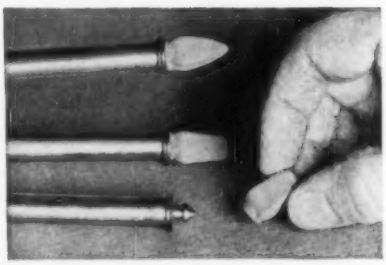
To Tighten Tripod Legs

When a tubular metal tripod starts getting wobbly because of looseness in the tripod legs, the trouble may be remedied by adding shims to the guide pistons or bearings—which are located by unscrewing the leg sections at each joint. Strips cut from thin shim brass then are bent around each bearing, and secured by bending edges down. The tripod parts should be dusted with powdered graphite before reassembling.—*Ken Murray, Colon, Michigan.*

Reduce Light Through Film Window

When using the newest high-speed panchromatic films, many photographers have found it advisable to uncover and inspect the camera film window by subdued light. The amount of light admitted through this window can be reduced to about one-third by covering each side of the window, from the inside, with a strip of black masking tape, leaving a narrow middle section through which to observe numbers on back of the film-backing paper.—*G. S. Greene, Detroit, Mich.*

Tips for Metal Spurs



Camera tripod legs terminating in metal spurs can be rendered scratch-proof and skidproof by covering the spurs with pencil erasers of the slip-on type. It may be necessary to shorten the erasers by cutting off a portion of the open end so that each spur will be firmly seated. Tripods so equipped will not slide or mar smooth surfaces with scratches. When necessary to use tripod without them, the protective tips can be removed quickly and easily.—*O. A. Nelson, Seattle, Wash.*

Airtight Closures for Solutions

Darkroom chemical solutions which must be kept tightly capped can be given extra protection by the addition of a disk cut from strong, pliable plastics sheeting (the kind used for packaging fruits and other perishable items) and affixed firmly to inside of cap. The disk should be cut with wide margin, as indicated in accompanying illustration, and the excess trimmed off after cap has been screwed onto container, providing airtight closure. —*F. Eldring, Winnipeg, Canada.*

Why not send in your ideas for better picture-making and darkroom aids? We will pay $10 for each photographically illustrated Tip accepted—$5 if not illustrated. Material must be original and not previously published.

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400mm f5 Reg. $250, special ... 149.50
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focusing wheel on 500mm and up

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f3.5 COATED TESSAR

Supply limited—subject prior sale
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1956 MODEL
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Lens is in Compur Synchro Press shutter. Complete with rangefinder and flashgun.

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f2.8 Tessar pre-set OR f1.9 MEYER ctd. plus CASE, plus FLASHGUN plus 150mm f5.5 Tele-Astra lens in pre-set diaphragm, plus ZEISS PRISMASCOPE; Bulb & Strobe Sync.

	Reg.	Price Special
Camera & Lens	299.75	89.50
Leather Case	15.00	9.75
DeLuxe Flashgun	12.00	8.50
Tele-Astra Lens	69.50	49.50
Total (ALL NEW)	396.25	156.75

1.85 post & ins.

Sorry we do not break up the combo. Must be ordered as a unit. Only 10% down—Trades Accepted.

2¼x2¼ ASTRAFLEX II

100mm f2.8 MEYER PRIMOPLAN COATED—PRE-SET SINGLE LENS REFLEX CAMERA. Strobe & bulb sync. Interchangeable lenses. Focal plane shutter, use standard 120 roll film.

BRAND-NEW EXCLUSIVE **185.00**

2.30 post & ins. case 12.90
TRADES ACCEPTED

2¼x2¼ REFLEX 66

2¼x2¼ single lens reflex with sync and 75mm f3.5 coated lens. Interchangeable lens. Value 135.00.
BRAND-NEW **79.50**

DeLuxe case 8.50
1.80 post & ins.

150mm f5.5 Tele-Astra pre-set.
Coated BRAND-NEW .. 59.50
Extension tube set ... 9.95
B.C. Flashgun 9.95

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2¼x2¼ AMIFLEX

with case & Flashgun

Nothing else to buy! All metal; full focusing range. f3.5 coated lenses. Built-in flash sync. Reg. 84.50.

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with three (3) lenses

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Coated optics. Central focusing. Light weight all metal construction. Exceptionally fine precision workmanship. Genuine AUTRONIC.

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1½" f1.4 LENS TELE-AMITAR

SUPER FAST 8mm MOVIE LENS

Coated optics. Lens features precision focusing mount and click stops. Engraved depth of field scale. For ALL 8mm cameras (specify.)

BRAND NEW **25.00**

65c post & ins.

For Bell & Howell 8mm f1.9 coated. Add 2.95 case 75c EXTREME WIDE ANGLE 24.95

NEW EXCLUSIVE PURCHASE PLAN

Buy the camera you want in the CONDITION you want. Many, many cameras arrive at our trade depot in varying degrees of condition. Group A-1 refers to demonstrators —like new, excellent and even "cream puffs"; difficult to tell from NEW; all late models.
Group B-1 are definitely used, but in good condition. Choice is up to you.

35mm cameras

	New	A-1	B-1
Argus C-3, f3.5 case flash	66.50	37.95	31.95
Bolsey B f3.2 coated	54.00	22.50	19.95
Contax IIA, f2 ctd Sonnar	336.00	189.50	144.00
Contax IIIA, f1.5 ctd Sonnar	412.00	217.00	179.00
Exa, f2.9 coated	89.50	65.50	44.25
Graflex Ciro '35, f3.5	59.00	39.50	32.50
Kodak Signet, f3.5	75.00	49.00	37.50
Kodak Retina II, f2 CRF		62.00	54.50
Kodak Retina IIa, f2	149.50	105.95	72.00
Kodak Retina IIIc	190.00	137.50	116.50
Leica IIIF, f1.5 Summarit	358.00	229.00	174.95
Leica IIIF, f2 Summitar	324.50	189.50	146.95
Leica IIIC, f2 Summitar		154.50	129.50
Zeiss Contaflex, f2.8 Tess	169.50	101.75	80.95

2¼x2¼ reflex

	New	A-1	B-1
Ciroflex D, f3.5 coated	84.50	47.75	34.00
Ciroflex C, f3.5 coated	75.00	49.50	36.50
Flexaretti, f3.5 coated	89.50		32.50
Graflex 22, f3.5 ctd Sync	93.50	64.00	46.00
Hasselblad, f2.8 Ektar	379.50	239.50	197.50
Kodak Reflex II, f3.5 ctd	155.00	74.50	55.95
Rolleicord III, f3.5		73.50	62.50
Rolleicord V, f3.5	134.50	99.00	81.95
Rolleiflex Auto, f3.5 Tess		107.00	95.00
Rolleiflex Auto, f3.5 Tess Sync		122.00	109.00
Rolleiflex Auto, f3.5M-X	229.50	147.00	119.00

8mm cameras

	New	A-1	B-1
B&H 220, f2.5 coated	49.95	37.50	31.00
B&H 134TA, f1.9 coated	159.95	98.50	67.00
B&H 172A, f1.9 coated	199.95	134.50	117.00
Bolex B-8, f1.9 coated	154.50	112.50	89.50
Bolex C-8, f2.5 coated	89.95	64.50	56.75
Revere 84 f2.5	124.50	59.50	

8mm projectors

	New	A-1	B-1
B&H Monterey, 500w	79.95		46.50
B&H Regent, 500w	179.95	126.50	91.50
Keystone	169.50		74.95
Revere 85, 500w	114.50	78.50	52.95

16mm cameras

	New	A-1	B-1
B&H 70DL, f1.9 coated	365.50	299.50	218.00
Bolex H-16 Leader, f1.9	269.50	184.00	146.00
Bolex H-16 Deluxe, f1.9		229.00	

16mm projectors

	New	A-1	B-1
B&H 273, A/750w	199.95	126.00	
Kodascope 16/20, 750w	225.00		129.50
Revere 48	182.50	95.00	

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A new Japanese lens has broken through the *f*/1.4 barrier. Here is a first hand report on the Zunow *f*/1.1 in the hands of a practical photographer.

MEET THE ZUNOW f/1.1

By NORMAN ROTHSCHILD

THE quest for speed in photography has been a twofold search, one for faster films, the other for lenses with both speed and definition. About two years ago, the cellulose barrier was broken with new, superspeed films of almost fantastic ratings. The glass barrier held, however, shored up by hitherto unsolved problems of optics and manufacturing techniques. Nothing seemed to be able to crash the barrier even for a 10 percent gain. When, therefore, what was supposed to be the world's fastest 50-mm lens, an *f*/1.1, was announced, the first question raised was how good it would be for practical use.

To get an answer, the editors of POPULAR PHOTOGRAPHY secured one of these lenses, a Japanese-made Zunow, product of Teikoku Kogaku, and ran it through a series of practical tests.

The first question was, how fast is this lens compared with the standard lenses? Based on relative aperture figures, the Zunow is 3 times faster than an *f*/2 and 60 percent faster than *f*/1.4. (To compare the speeds of various lenses, square the apertures and compare the squares. An *f*/2 lens squared is 4; the *f*/1.1 lens squared is 1.21. The relationship is roughly 3 to 1.)

However, speed is not only a set of numbers; it is light transmission. A good high-speed lens usually requires extra elements which reduce its effective speed. The average *f*/2 lens has 6 elements, an *f*/1.4 has 7, the *f*/1.1 has 9. Would the extra absorption and light scatter of the additional elements cut down the effective speed advantage of this lens? Would there be so much flare that the lens would perform poorly?

To check this, the following test was made. Two popular lenses, one *f*/2, the other *f*/1.8, were used as controls. A Leica M-3 was mounted on a tripod with the shutter and back open. The large, bare cell of a Norwood Model A exposure meter was taped to the open back and the entire assembly pointed directly at a large, white, even floodlighted sheet. Very little difference was found in the

Comparison of two pictures shows what *f*/1.1 means in practice. Top photo was made with *f*/2 lens, bottom with Zunow. Both were made on Tri-X, developed normally in D-23.

The only light for this photo came from the screen. Made at *f*/1.1 at 1/25 of a second on Tri-X, this would have been impossible two years ago.

NEW! BRAND NEW STROBE $19.95 COMPLETE

NEW! NATIONALLY ADVERTISED

Spiratone does it again! A powerful lightweight (¾ lb.) electronic flash, made by the country's oldest of strobes! Plugs into AC outlet, UL approved, General Electric flashtube good for 10,000 flashes and more! Guide Number with Anscochrome 40-50, w Tri-X 150-200

ACCESSORIES: Camera Bracket, $1.25; 4 ft. Coiled Cord (name camera), $1.98; Sh. Chg. 1.00

COMBINATION Battery-operated and AC Portable Strobe, twice as powerful, uses standard D-size batteries, sensationally priced, complete $36.95

TWINLENS REFLEX CAMERA FANS—SAVE UP TO 50%!

FIELD LENS $2.00

A SENSATIONAL SPIRATONE EXCLUSIVE WORTH 2½ TIMES AS MUCH

A flat thin Fresnel ring plate which fits over groundglass in your reflex camera, greatly increasing brilliance of viewing image, making the often almost invisibly dark corner image ten times brighter! No installation—just drop fieldlens onto groundglass. Postpaid.

For Rollei, Graflex "22", Ciroflex, Ricohflex, Ardoflex, etc.

MAGNIFYING HOOD $2.95 PPD.

FOR ALL TWIN LENS REFLEX CAMERAS

Twin magnifier makes possible accurate focusing and composing of entire groundglass image with BOTH EYES and at comfortable distance, while protecting groundglass from glare. Saves eyestrain, helps accuracy, dim light focusing. Instantly removable and collapsible. For Rolleis, Graflex 22, Ricoflex.

COMBINATION OFFER: Magnifying Hood plus Fieldlens $4.59

AUX. TELEPHOTO and WIDEANGLE LENSES

for Rollei (except 2.8), Ciroflex, Graflex 22 $16.95 EA. or $29.95 for set, in double leather case.

EYELEVEL FINDER for ROLLEI, CIROFLEX, GRAFLEX 22, RICOHFLEX

REG. $7.95

$4.98 • At last — an expensively finished optical device which shows a right side up image for easy eyelevel focusing!

Clips instantly on and off Rollei hood! Highly corrected optics, all metal construction. Name camera when ordering. *Shipping Charge 20c*

2¼ SQ. GLASS BINDERS AS LOW AS 5¢ Ea. ON LOTS OF 400

At last—an economical type-on mount with 2¾ x 2¾ outside dimensions to fit standard viewers, projectors. Each binder comes complete with two glasses. *Shpg. Wts. 4, 7 and 12 lbs.*

50 for $3.65 — 100 for $6.49 — 400 for $20.00

Sample Package of 12 — $1.15 *postpaid*

35MM ADAPTER FOR ALL TWINLENS REFLEX CAMERAS

Without installation, the Minidapter enables you to use 35mm film in your 120 Rolleiflex, Rolleicord, Ciroflex, Graflex 22, Flektar, etc. —yet, you can change back to your regular size any time you wish. Minidapter comes complete with groundglass mask and separate finder, for vertical and horizontal shots. ready to use. *Shpg. Chge. 30c* REG. $9.95 $5.95

NOW—for the Twin Lens Reflex Fan SPLIT-IMAGE RANGEFINDER

IN FOCUS — OUT OF FOCUS

- For Rolleiflex, Rolleicord, Ciroflex, Graflex 22.
- Breaks straight lines at an angle until perfect focus is reached.
- Wonderful for poor light focusing.

Rangefinder is built into groundglass which replaces your present groundglass. Complete instructions supplied, simple installation (or your local mechanic can do it at nominal cost). A "must" for the photographer who insists on perfect focus. Reg. $4.95 REG. $4.95 $2.49 PPD.

SAVE 50% ON PARALLAX-CORRECTING CLOSEUP SETS $2.49 EACH ALL 3 SETS $6.98

PLUS 1 (38"-20")
PLUS 2 (20"-13")
PLUS 3 (13"-10")

A 'must' for closeup work with Ciroflex, Graflex 22, Rolleis (3.5) etc. Sets fit your Ser. V filterholders—or we can supply: Slipon $1.00 ea., Bayonet $1.75 ea. *Shpg. Chge. 10c.*

35MM COLORFILM ADAPTER FOR RICOHFLEX VI, VII SUPER $3.95 ppd.

CONTAINS CARTRIDGE ADAPTERS, 35MM FILM GUIDE COUNTER.

2 x 2 GLASS SLIDEBINDERS

- Comparable to 6c slidebinders.
- One of the finest methods of mounting transparencies (35mm Argus, Leica size) betw. glass!

The biggest bargain in quality slidebinders ever offered. Pregummed Fibreboard, self-centering of slide, provision for type-on titles, dustproof, linfree, shockproof —all these advantages are yours for less than the usual cost of glass alone! Why risk fingerprints and scratches on your irreplaceable color shots? 200 for $5.00.

Shipping Weight 5 lbs.

2½¢ ea. in lots of 200

Sample package of 20 2x2 glass and 3 2x2 metal binders, postpaid $1.25

200 singleframe (Mercury) Masks $1.75 | Masks fit glass
200 Square (Robot, Tenax) Masks $1.75 | & metal binders
2x2" cardboard mounts for single frame (Mercury size) transparencies 50 for $5c. *Sh. Wt. per 100, 1 lb.*

800 for $18.95

CLEARANCE SALE ON FINEST QUALITY METAL EXTENSION TUBES

SAVE UP TO 75%

5 pc. Set, 3 tubes, 2 brass adapters, for Kine Exakta, Exa, reg. $9.95	$4.98
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3 pc. Set, for Leica, Canon, reg. $5.95	$2.49
4 pc. Set, incl. adapters for Contax II, IIa, IIIa, Nikon, reg. $14.95	$7.49
FOCUSING TUBE, incl. adapters, for Kine Exakta, Exa, reg. $9.95	$5.95
FOCUSING TUBE for Praktiflex, Praktica, Pentacon, Contax S, reg. $9.95	$5.95
FOCUSING TUBE for Leica, Canon, with distance scale engraved, reg. $9.95	$5.95

Sh. Ch. per set 15c

Save on fresh 35MM ADOX FILM

Your choice of KB14, KB17, KB21 *Shipping Charge 10c*

20 exposure roll 65c — 3 or more (may be assorted) 55c each
36 exposure roll 95c — 3 or more (may be assorted) 85c each

35 MM INDOOR COLOR FILM ASA 12 20 EXP. $1.50 EA.

Prompt, expert processing included in these low prices! 3 for $4.25
Shipping Charges: 1—5c, 3—10c, 8—30c. 8 for $10.00

FRESH SAFETY KODAK B&W FILM

All four popular speeds, Panatomic X (Background R), Plus X, Super XX and Tri-X are available in 27½ ft., 50 ft. and 100 ft. lengths and 20 and 36 exposure reloads.

27½ FT. $1.39 — 50 FT. $2.29 — 100 FT. $3.98

Shipping charges 10c, 30c, 30c

COMBINATION SPECIAL

Daylight loader with 5 cartridges and 100 ft. of black & white film, a $9.90 value $7.99

Shpg. Wt. 4 lbs.

BLACK & WHITE RELOADS in metal cartridges may be assorted

20 EXP. 40c ea. 6 for $2.00 — 36 EXP. 60c ea. 4 for $2.00

Shpg. Chgs. 1 or 2 5c; 3 to 6 20c; 7 to 12 25c.

ALL YEAR B&W ASSORT.

Daylight loader with 5 cartridges plus 27½ ft. each of Panatomic X, Plus X, Super XX and Tri-X $10.49

ANSCOCHROME INCLUDING PROC. FOR ASA 128

35MM 20 EXP. 3 for $7.50 — $2.59 ppd.
120 OR 620 3 for $8.69 — $2.39 ppd.

Spiratone is proud to be first to offer the new Anscochrome with the revolutionary speed-increasing processing described in the June '55 issue of "Photography," enabling you, for the first time, to take fast action shots, shoot in poor light, as you would with a fast B&W film!

35mm DAYLIGHT LOADER

INCLUDING 5 CARTRIDGES

$4.95 IF PURCHASED TOGETHER WITH MINIMUM OF $7.95 WORTH OF BULKFILM.

It's so simple to take advantage of the exceedingly low cost of 35mm bulkfilm and to load any desired length into a standard Eastman cartridge. First few reloads already make loader pay for itself. Loader alone with 5 cartridges, $5.95. *Sh. Wt. 4 lbs.*

DELUXE LOADER, with automatic counter, accepts also Leica, Contax cartridges — $10.95 or add $5.00 to comb. offers.

FREE FILM TONGUE CUTTER with your order for $5.00 or more of bulkfilm, or $4.25 worth of bulkfilm plus loader. For perfect shaping of tongue to assure smooth loading. Must be requested at time of purchase.

NEW MANSFIELD 2x2 and 2¼x2¼ SLIDEBINDER

$2.59

For the cleanest, the most efficient way for binding slides between cover glasses (2 x 2 or 2¼ x 2¼), it's the new Mansfield Slidebinder. While glass sandwich is held in rubber-covered viselike arrangement, tape can be rolled freely and applied to glasses. *Shpg. Wt. 2 lbs.*

Up to 70% off! 2x2" Color-Slides for as little as 3c!

2 x 2" 10 PC. N'ATL. PICTURE SLIDE SETS

Yes, these famous sets of 2 x 2" full color slides of which hundreds of thousands have been sold at $1.00 per 10 are now brought to you at less than half price! Scenics from all over U. S. and many foreign countries, and children's stories. Each number contains 10 dif. slides. Choose from these:

GROUP G

3. Rodeo in Calif.
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13. Bryce Canyon
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31. Chicago, Illinois
40. Atlantic City, N.J.
40A. Atlantic City
88. Genoa & Columbus
180. Mexico, Tourist Paradise
130. Alaska
181. Touring Mexico
191. Havana, Cuba
206. Newfoundland
208. Australia
C.11. Snow White

Any 4 slide sets (40 slides) in this group 'G' $2.40 — All 15 slide sets (150 slides) in this group 'G' $8.00

GROUP H

2. N. Y.'s Hudson River
4. Block Island
18. Big Bend Nat'l Pk.
22. Miami Bus. Dist.
28. NYC Financ'l Dist.
32. Notre Dame Univ.
35. Kansas City, Mo.
39. Wisconsin Dells
60. Madrid, Spain
70. Ireland
71. Blarney Castle, Ireland
111. Bombay, India
121. Lisbon, Portugal
151. Istanbul, Turkey
C-12. 3 Caballeros

Any 8 slide sets (80 slides) in this group 'H' $3.00 — All 15 slide sets (150 slides) in this group 'H' $5.00

Any 2 sample sets (20 slides) $1.35 ppd. *Shpg. Chges. 4 sets-10c—8 to 15 sets-30c*

2x2" VIEWER if purchased with 10 or more slide sets Eco. Model, reg. $1.00 59c; Del. Model, reg. $2.95 $1.59

REVERE 888 OWNERS! New REMOTE CONTROL 15 ft. RELEASE for your projector—only 3.95 ppd.

FOR THE 8MM & 16MM MOVIE FAN

8PC. DELUXE MANSFIELD ACTION EDITOR

SAVE 50%

8MM MODEL Reg. $59.50 $29.75

FREE with Deluxe Action Editor: Elegant Reelchest, for 12 reels (specify 200, 300, or 400 ft. cap.) *Shpg. Wt. 12 lbs.*

16MM MODELS, same as 8mm but with 2,000 ft. rewinds, reg. $69.50 $34.75

Diecast base comes readily apart for compact storage. Action Viewer has focusing AND framing control, projects brilliant image on 2x3 screen. Easy to thread, scratchproof, scientific ventilation of lamphousing. Complete Outfit: Viewer, 3 piece base, automatic master splicer, cement, pair of 1200 ft. rewinds.

$9.95 Value — COMBINATION OFFER: 8MM EDITOR, REELCHEST, NEW POCKET TITLER, Pocket Titler $73.00 value. Name your camera,lens when ordering. 35.95

4 pc FAMOUS MAKE 8mm EDITING OUTFIT $10.95

A value like never before!

SAVE $10.55

Outfit contains Projection Editing Viewer, with bulb, pair of rewinds with brakes, all metal splicer, all ready for simple mounting on board or table (not supplied). Can you afford to pass up such a value? *Sh. Wt. 6 lbs.*

CINE TITLER

REG. $5.95 — For 8mm & 16mm — $3.59

SAVE 40%

Titles add action, provide continuity for your movies! Yet making titles is so simple with the Cine-Titler! Sturdy metal construction. Auxiliary lens for exact focus. Photograph picture postcards, titles of your own design: you can even shoot animated titles—an instruction booklet accompanies every titler. If purchased at the same time as Action Viewer, Action or Super-Deluxe Editor

Shipping Weight 4 lbs.

Titler alone $4.64

SUPER DELUXE 8mm EDITOR

$14.95

Same viewer, rewinds as above, but with automatic splicer, plus metal base—a $26.00 5 pc. set. *Sh. Wt. 6 lbs.*

SALE IN METAL REELS and CANS

8mm | 200 ft. sets 6 for 3.39 | 400 ft. sets 5 for 3.98 | 300 ft. sets 5 for 3.49

Ship. Wt. per lot 3 lbs.

8mm ACTION VIEWER

$16.89

• Projects brilliant 2" x 3" pictures in full action on the built-in groundglass screen—not just one frame at a time, but in continuous motion. A viewer which makes editing a real pleasure. Operator can adjust focus to his own vision. Easy to thread, scratch-proof, scientific ventilation of lamphousing—really a blessing for movies fans with a limited budget who know they'd have to spend $40.00 and up for a viewer like it! *Sh. Wt. 4 lbs.*

16mm Mod. $17.95

8mm PROJECTION EDITING VIEWER

$6.95

You'll more than ever enjoy editing your movies when you use this neat, all-metal, electric editing viewer. It projects a clear image on the groundglass, makes possible viewing from a comfortable distance. *Shipping Weight 8 lbs.*

PORTABLE CRYSTAL-BEADED 30x40 TRIPOD SCREEN

LOWEST PRICES EVER

$7.69

- Crystal-beaded Pyroxilyn surface.
- Screen raises and lowers on elevating rod, assuring positive alignment.
- Carrying handle sets automatically for balanced carrying.

Despite higher steel prices, Spiratone continues to offer you the biggest bargains in screens ever! Same quality as before, and as praised by thousands of movie and slidefans. Metal can has beautiful scratch-resistant finish. Sturdy tripod is plated and has protective rubber tips. Thousands of these screens are in use, not only by amateurs, but by clubs, churches, colleges as well.

Screen Size		Ap. Sh. Wt.
30"x40"	7.89	10 lbs.
40"x40"	9.18	11 lbs.
37"x50"	10.64*	14 lbs.
50"x50"	12.97*	15 lbs.
52"x70"	24.95*	

*Screens are shipped by Express (freight costs collect) within U.S. --- other screens P.P or Express.

40 x 40 SILVER TRIPOD-SCREEN $12.95

1½" 3X CTD. TELE f/0, 8MM $5.00

Not an auxiliary, but a complete, coated, color-corrected sharp-cutting prime telephoto, with diaphragm, in neat satin-chrome mount. Fits virtually all 8mm Revere, Keystone, Dejur cameras, for B&H cameras add $1.50. Name model when ordering.

8mm Prime WIDEANGLE Lens, coated, color-corrected + Telephoto (above) — both for $16.00

Shipping Charge per lens 10c

3" F:1.8 ULTRASPEED TELE for 16mm $27.50

Coated, color-corrected, in focusing mount, clickstops, fits all 16mm Revere, Bolex, B&H cameras. *Shpg. Chge. 50c*

Matching objective for Bell & Howell $4.95

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated — overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.'s. Items marked 'Free', 'Premium' or 'Bonus' MUST be requested at time of purchase. Foreign orders welcome — slight extra handling charges apply.

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This portrait by street lamp, made on Tri-X film at f/1.1 at 1/5 of a second, shows the light-gathering power of the Zunow lens.

transmitted-light readings at the same apertures, for all lenses tested. In fact, the needle of the meter generally veered toward the high side with the Zunow in place on the camera. At f/1.1, the reading was proportionately higher than at f/2.

The Zunow was then put through practical tests. Pictures were taken at meetings, under theatre marquees, and by candlelight at full aperture. A number of outdoor shots were made at the smaller apertures to see how the lens would perform in this area. These tests showed that for all practical purposes, this lens was as sharp as most of the high-speed lenses used. (Note: A test on an optical bench with the lens held rock-steady might have disclosed differences in sharpness. However, the use of a hand-held camera at slow speeds introduces variables such as camera shake which tend to reduce lens performance ratings to "acceptable" or not.) To check flare, a number of pictures were made directly into the light with, and without, a lens shade. Because of the multiplicity of elements, it was found advisable to use a lens hood (Series VII) at all times.

A roll of Kodachrome was taken with the Zunow and with an f/2 lens known to give "normal" color rendition. Color shots made with the Zunow lens were found to be on the warm, or reddish, side, but not displeasingly so. If you like your colors cool, an 82 or 82A filter would probably give you all the correction you would want. (Slight variations in color rendition of the various lenses used by professional available-light photographers are of little consequence since the efforts of the art director and the engraver can "make" any final rendition to fit the need possible.)

One last question had to be answered before we could be satisfied about the practicability of the Zunow lens. Would the shallow depth of field at f/1.1 make the lens too difficult to focus for practical use? The answer was that the f/1.1 lens had to be focused more carefully than an f/2 lens, but this is not any more severe a problem than that faced by a press photographer using an f/3.5 lens wide open on a 4x5 camera. The precision of the miniature makes it easier to hold a 1 x 1½ inch piece of film in the focal plane of a 35-mm camera than it is for a 4x5 sheet in a holder.

The Zunow lens, distributed by Camera Import Corporation, 521 Fifth Avenue, New York City, is supplied in a threaded mount for Leica-type cameras and in a bayonet mount for Contax-types. Focusing is from 3½ feet to infinity and the click-stop diaphragm closes down to f/16. Price in either mount is $450. It will be available for use on the Ekakta, Pentacon, and similar reflex cameras at a later date with prices to be announced then.

This lens should open up new areas for the available-light man, giving him that extra "edge" for pictures which were formerly impossible. This is especially true in color where the new films are still slower than black-and-white emulsions, making lens speed a vital factor.—▶

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(outdoor or indoor)

120 or 620 ..... 3 for 3.50
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35mmx100' SAFETY FILM

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(Loaded in daylight loading spools in metal cans)

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8x10	**DWSM**	**No. 2, 3**	**100 sheets**	**3.75**
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*First time available in double weight

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Your choice: 250 SHEETS **4.50**

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White porcelain coated (8 lbs.) 3.75 each
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Size	SW, GL or SM	DW
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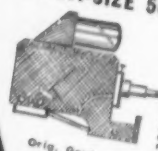
Sensational Value! Brand New MULTI-SIZE 500-W. PROJECTOR



One projector for all transparency sizes. Also projects opaque. Also printed matter, (pictures, and B&W.) etc. color 3 lenses. Complete with series and fitted case. blower, accessories and fitted case. Projects 2¼ x 2¼, 2¼ x 2¼, 35mm (double, square and single frame) slides or roll.

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4 for 4.45

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High Speed
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100' Roll, 10.40 3/24.95
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GSAP 16mm Mag. Camera, Model C, 24-Volt Fairchild, C-mt. Battery, AC or DC operated. Body only, 24.95. Viewfinder, 6.95. 1½" lens, B&H F3.5—21.00; B&L F2—19.50.

3-FILTER COMBO B&W: Yellow, Green, Red. COLOR, Day-to-tung., tung-to-day., haze Ser. V—2.95; Ser. VI—3.95.

Brand New Coated 7" F2.5 AERO EKTAR

Based on famous 7-element Biotar Formula to give needle-sharp pictures at high speed! Made by E.K. to exacting U. S. Army specifications. Adaptable to 4x5 down to 16mm cameras. Gov't. cost 489.00.

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AERO EKTAR—Used. Guaranteed 52.50
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Normal contrast. Opal "G" Indiatone type. DW, Egg-shell lustre. 1956 dated. Mfrs. 2nds. Guar.

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	SW, GL or SM		DW	SM
	100	250	100	250
3x5	.98	2.25	1.25	2.95
4x5	1.25	2.95	1.59	3.69
5x5*	1.49	3.49	1.95	4.50
5x7	1.69	3.95	2.25	4.75

*Delta's new size, SW, GL, #1, 2, 4; or Varigam SW, SM; or DW, SM #1, 2, 3, 4, for owners of Rollei-type, 2¼x2¼ or 6x6cm. cameras.

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Hi-Speed SW, SM. Washes free of Hypo in minutes. Dries rapidly.
250.... 8.75
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Plastic Filter Sets for Varigam. Set of 5—5.75; Set of 10—10.00.

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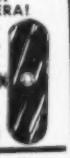

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Only **22.50**

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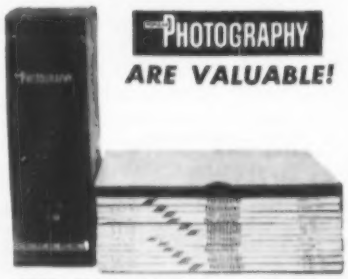

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What's New

(*Continued from page 31*)

type cameras; has three-section legs; extends to 76 in. (column rises 16½ in.) and telescopes to 28½ in. Hi-Boy II is a versatile model for high or low shots; has four-section legs; extends to 94½-in. (column has a 16½-in. rise) and telescopes to 29 in. Prices are, respectively, $32.50, $47.50, and $53.

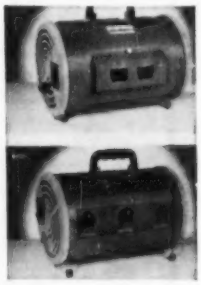
METRAPHOT 2 is a photoelectric-cell exposure meter designed to attach to a camera-accessory shoe. Supplemented by a supersensitive element for dim light, it gives a shutter speed range from 1/1000 sec to two minutes and lens stops from *f*/1.4 to *f*/22. Light Scale values from 1 to 18 appear in red figures. ASA calibrations are from 10 to 400. Price is $17.50; with supersensitive element, $24, incl. leather case. Distributor is Karl Heitz, Inc., 480 Lexington Ave., New York 17.

SEAHAWK PRODUCTS, 1560 Placentia Ave., Coral Gables, Fla., announces the availability of an underwater exposure meter. A Weston Cadet is permanently sealed in ¼-in. Plexiglass and chrome-plate brass control is packed with Neoprene "O" ring. Price is $49.50 and includes a full guarantee.

PROJECTION & VIEWING EQUIPMENT

COC PROJECTION Table Viewer takes all 2 x 2 mounts and projects them to 6 x 6, permitting group viewing. Automatic changer holds and restacks up to 36 slides. Also featured is fingertip focusing; on-off switch; 50 watt projection lamp. Folding flat into a self-contained luggage-type steel carrying case for portability, price is $34.50, including one-year guarantee and registration. Manufacturer is Camera Optics Corp., 101 W. 47th St., New York 36.

POCKET-VUE is a new slide viewer introduced by Mico Photo Products, 110 S. Dearborn St., Chicago 3. Mico Pocket-Vue folds flat to slip into pocket or purse, and opened, is said to give distortion-free magnification. Two-eye viewing is possible without eyestrain, it is claimed. The device can be used as a magnifying glass and illumination is by daylight or artificial light, the latter with the addition of Mico-Lite battery attachment, which costs $1.95. The viewer is priced at $2.95.



STEREO PROJECTION of maximum efficiency is claimed for the new Pola-Matic projector, a product of Raygram Corp., 145 E. 32nd St., New York 16. An outstanding feature is the superimposition of the dual images, prior to projection, without the customary eye strain. This is due to the removal of the polarizing element from the light path by means of a device called Pola-Slide. When the adjustment is completed the device returns it upon pressure of a small button. Other features include three rear-mounted knobs for horizontal, focusing, and vertical adjustments; built-in automatic slide changer; and a simplified tilting device. The price is approximately $119.50.

DE LUXE 2x2 SLIDE VIEWER is a new Eastman product. Known as Kodaslide Dial-Lite Viewer, the device has a 2-element achromatic, color-corrected lens and rheostat-controlled illumination, is designed for viewing either 135 or 828 glass- or cardboard-mounted slides, as well as one slide

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LOWEST PRICES EVER!

SAVE 25% TO 65%!

World's Foremost Brands

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Up to 20 Months to Pay!

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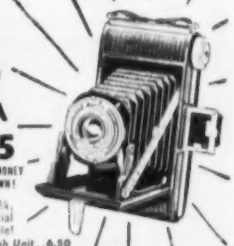
ANSCO VIKING FOLDING CAMERA



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Brand New! F4.5 Coated Lens, Picture Size 2¼x3¼, Pronto Synchro Flash, Speeds to 1/200. Special Purchase Makes this Money Saving Low Price Possible!

● 9.95 Leather Case..6.50 ● 9.95 Flash Unit..6.50

SOLIGOR MODEL 1

TWIN LENS REFLEX CAMERA WITH F3.5 COATED LENSES

2¼ x 2¼. Body Shutter Release, FX Flash Synchro Shutter, Speeds to 1/300, Ground Glass Focusing, Split Image Field Lens, Prism Range Finder, Geared Coupled Focusing Lever, Built-In Body P.C. Flash Outlet, Sports Finder.

List 60.00 **29.50** NO MONEY DOWN!

SOLIGAR II TWIN LENS REFLEX
F3.5 Coated Lenses, Large Knob Body Focusing, Other Features Same as Model 1. List 75.00 **39.50**

SOLIGAR III SEMI-AUTOMATIC
F3.5 Coated Lenses, Semi-Automatic Film Counter, Self Timer, Body Focusing. List 125.00 **49.50**

ZEISS IKON IKOFLEX IA

TWIN LENS REFLEX CAMERA WITH F3.5 COATED LENSES

Like New! List 76.00 **57.00** NO MONEY DOWN!

2¼x2¼ Roll Film. Automatic Film Winding, Prontor SV-XM Synchro Shutter, Speeds to 1/300, Built-In Magnifier and Eye Level Sports Finder, Double Safety Locking

14.00 Eveready Carrying Case 9.50

PRAKTICA FX 35mm

SINGLE LENS REFLEX WITH ZEISS F2.8 PRE-SET LENS

Focal Plane Shutter, Speeds to 1/500, Built-In Synchro for Bulb and Electronic Flash, Coupled Automatic Film Transport and Cocking.

List 139.50 **75.95** NO MONEY DOWN!

139.50 Praktica FX with 50mm Automatic Westanar F2.8 Lens 89.50
179.50 Praktica FX with 50mm Automatic Westagon F2. Lens 117.50
19.95 Eye-Level Prism Finder 13.95
10.95 Eveready Carrying Case 8.50
17.50 Microscope Adapter 12.95
Extension Tube Set, Special 5.95
Focusing Extension Tube 7.95

EXA AUTOMATIC 35mm CAMERA

- Single Lens Reflex
- Carl Zeiss F3.5 Lens
- Built-In FX Synchro Flash
- Speeds to 1/150
- Waist Level Finder

List 109.50 **69.50** NO MONEY DOWN!

10.00 Eveready Carrying Case.. 8.50
42.50—100mm Westar F4.5 Telephoto Coated Lens.. 19.95

DITTO 99 35mm RAPID SEQUENCE

- F2.8 Coated Lens
- Focal Plane Shutter
- Built-In Flash Synchro, Including Sequence Strobe
- Speeds to 1/1000

List 99.00 **49.50** NO MONEY DOWN!

45.00 Tele Lens 105mm, F6.3, W/Frame Viewer ... 33.50
8.50 Eveready Carrying Case 6.50

EXAKTA VX 35mm AUTOMATIC

- Single Lens Reflex with 58mm F2 Zeiss Biotar Preset Lens
- Penta Prism Viewfinder
- Delayed Action Self Release
- Synchronization for Flash or Strobe ● Speeds to 1/1000
- Focal Plane Shutter

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VOIGTLANDER BESSA II

- Skopar F3.5 Coated Lens
- Built-In Range Finder
- Compur Rapid Synchro Shutter ● Speeds to 1/400
- Film Size 2¼x2¼

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ILOCA QUICK "IIA" 35mm CAMERA

- Ilitar Color Corrected F3.5 Lens
- Prontor SV-MX Synchro Shutter
- Coupled Range & Viewfinder
- Quick Focusing
- Speeds to 1/200

List 89.50 **34.95** NO MONEY DOWN!

8.50 Leather Case .. 4.95 7.95 Flash Unit .. 3.95

ILOCA 35mm STEREO IIA CAMERA

- Matched F3.5 Coated Lenses
- Flash Syncro Shutter
- Speeds to 1/300
- Brand New German Import

List 125.00 **59.50** NO MONEY DOWN!

● 12.50 Carrying Case..7.50 ● 7.50 Pentax Finder 5.00

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S.V.E. DE LUXE SLIDE PROJECTOR List 59.75 **35.50**
● 300 Watts ● Blower Cooled
● 5" F2.9 Lens ● 2 x 2 35mm

A. O. SKOT AUTOMATIC PROJECTOR List 69.50 **44.50**
● 300 Watts ● 5" F3.5 Lens ● 2 x 2 35mm
● Blower Cooled ● Airequipt automatic changer
● Custom Carrying Case Demonstrator

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● 300 Watts ● 5" F3.5 Lens ● 2x2, 35mm ● Case
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LOWEST PRICES EVER ON NEW MOVIE EQUIPMENT

KEYSTONE

Lifetime Guaranteed 8mm Movie Camera

List Price 59.95 **34.95**

- F2.8 Coated Lens
- 3 Speeds
- Footage Indicator
- Drop-In Load
- Self Movie Running Lock
- Brilliant Optical Viewfinder
- New 1955 Model K-36, Disc.

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Lifetime Guaranteed 8mm Projector

Orig. List 112.45 **69.95**

disc modes

- 500 Watts
- F1.6 Lens
- 400 Ft. Reel Capacity
- Blower Cooled
- Power Tilter
- AC-DC Motor
- Complete with Case
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SAVE ON BRAND NEW FEDERAL ENLARGERS

	LIST	NOW
35mm 135C. F4.5 Lens	49.95	37.49
Model 135C Carrying Case	7.25	5.44
FOR 2¼ x 3¼ NEGATIVES		
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No. 269 Diffused F6.3 Lens	39.75	30.49
No. 279C Condenser F6.3 Lens	46.95	35.19
Nos. 269, 279C Carrying Case	7.25	5.44
No. 269CL Cold Light, F6.3 Lens	53.00	40.50
No. 269CL Carrying Case	10.25	7.69
No. 311C F4.5 Lens	69.25	51.94
No. 315CL Cold Light, F4.5 Lens	80.00	59.75
FOR 4 x 5 NEGATIVES		
No. 450 Diffused F4.5 Lens	109.50	81.95
No. 450CL Cold Light, F4.5 Lens	114.75	85.95
No. 470 DC Condenser F4.5 Lens	129.50	97.13

TERRIFIC SAVINGS ON NEW FILM EDITING EQUIPMENT

Bala 8mm or 16mm Action Film Editor	56.75	34.95
Siemens 8 or 16mm Rewind Splicer	38.50	18.75
Mansfield Sr. 8mm Film Editor List	25.95	13.95
Mansfield Deluxe 8mm Action Editor	59.50	27.95
Mansfield Jr. 8mm-16mm Splicer List	3.50	2.19
Mansfield 8mm-16mm Auto-Splicer List	9.95	4.50
Mansfield 16mm Action Editor List	39.95	22.50

BIG SAVINGS ON NEW COATED LENSES!

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85mm Travenar, F2.8 Automatic Lens	54.50
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135mm Travenar, F3.5 Automatic Lens	49.50
180mm Tele-Picon, F5.5 Preset Lens	47.50
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For Praktica, Pentacon & Contax "S-D"	
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180mm Tele-Picon, F5.5 Preset Lens	47.50
For Leica Cameras	
135mm Travenar, F3.5 Automatic Lens	49.50
135mm Travenar, F4.5 Lens	37.50
2" Tricor, F3.5 Enlarging Lens	4.85

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Latest model with automatic Diaphrams and Penta Prism

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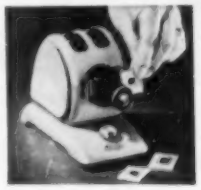
Chicago 4, Illinois

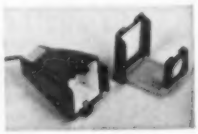
of a mounted stereo pair. Dial-Lite has a 6-watt lamp and 8-ft cord for convenience in passing from person to person, and a desk stand is packed with each viewer. Price is $12.95.



MINOX Slide Projector, Model 30, projects a 2x3 ft. image from Minox and other small color transparencies. Measuring 8x6x3½ in., it is equipped with a 35-mm Minostar lens, a double condenser-lens system, and a silvered optical-glass reflector. Illumination is supplied by a 100 watt bulb. Also featured is a built-in elevating device, 6 ft. rubber cord, metal slide changer for 30x 30-mm slides, and leather carrying case. Distributed by Kling Photo Corp., 235 Fourth Ave., New York, price is $79.95.

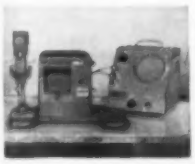
FILMOSTO 2x2 TABLE VIEWER is an import of Karl Heitz, Inc., 480 Lexington Ave., New York 17. The viewer operates a changer for two transparencies, a guide for uncut 35-mm film strips, or the automatic Airequipt slide changer. A built-in compartment holds 65 slides; weight is 2½ lb, and dimensions are 3x6x7½. Price, with green metal case, is $18.90; with leather case it is $24.90.

TELE-VUE is a battery operated pocket viewer for 35-mm and Bantam slides which zooms in and out for wide-angle group viewing or telephoto for close-ups. Mico Photo Prods., 110 S. Dearborn St., Chicago 3, claims the single optical system eliminates distortion and gives full magnification. Unit, complete with on-off switch, C batteries, table stand, and built-in electrical outlet for transformer, is priced at $7.95.



KODAK ILLUMINATOR Model 1, designed to clip onto the Kodaslide Pocket Viewer provides electric illumination by means of a seven-watt bulb. It can also be used to preview slides before projection. Unit locks on the rear frame of the pocket viewer and comes with an eight foot cord. Another product of Eastman Kodak, Rochester 4, N. Y., price is $2.95.

SOUND PROJECTION EQUIPMENT



DUAL READER is announced as the latest addition to the field of 16-mm sound-on-film editing equipment. It consists of an optical sound-reproduction head, combination amplifier-speaker, and a base to which any 16-mm motion-picture viewer may be added. Sound head can be positioned for single or double sound system sound tracks and adjusted so that picture and sound are separated the required 26 frames for synchronization. The 5-watt amplifier has an Alnico speaker, volume control, and a separate exciter-lamp rheostat control. Manufacturer is Camera Mart Inc., 1845 Broadway, New York 23; price is $195 less viewer, f.o.b., N. Y.

REVERE Projector - Recorder Synchronizer is an accessory for use with a Revere tape recorder and an 888 slide projector. The unit initiates slide changes automatically by means of silent periods of from four to eight seconds during commentary on your own recorded tapes. An extension speaker socket allows a speaker to be placed at the screen, if desired. A product of Revere Camera Co., 320 E. 21st St., Chicago 16, the price is $34.50.

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12"	300MM	f5.6	Kilar (L. N.)	119.50
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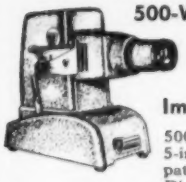

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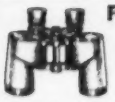

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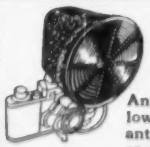

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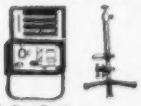

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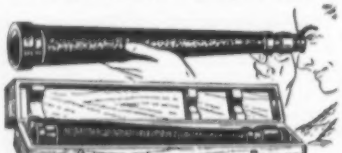

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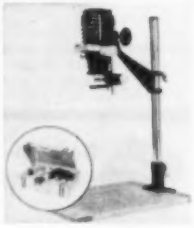
POPULAR PHOTOGRAPHY—Index Dept.
366 Madison Ave., New York 17, N. Y.

SUPER THIN AUDIOTAPE recording tape is made on ½-mil-thick DuPont Mylar polyester film, allowing 2400 ft. of tape recording. Designed primarily for long recording needs with unbroken continuity, it is announced as less strong and with more print-through than heavier types, making it unsuitable for high-fidelity requirements. Signal to print-through ratio is 47 db. Further information from Audio Devices, Inc., 444 Madison Ave., New York 22. Available in the full range of tape-recording widths and reel sizes, prices start at $6.75

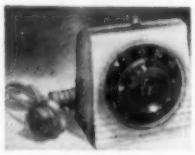
LONG-PLAY MAGNETIC TAPE, Scotch Brand No. 150, is announced by Minnesota Mining and Manufacturing Co., St. Paul, Minn. It is said to give 50 percent longer playing time than earlier company products, and has 1,800 ft on a 7-in. reel to run 48 minutes at 7½ inches per sec. It is backed with Du Pont Mylar polyester film for greater durability and humidity resistance, etc. Price of the No. 150 tape is $7.95 for 1,800 ft on a 7-in. reel.

DARKROOM EQUIPMENT



ZENITH 35 is a 35-mm enlarger delivering prints from contact size to 11x14 on the baseboard. Of die-cast aluminum construction, it is portable (weighs 11 lb) and has Anchor-Quik locking clamps for setup and adjustment. Other features are double condensers, heat-resistant glass, interchangeable lens board, glassless negative carrier with film hangers and strip film release, horizontal and vertical projection, micromatic focusing. With a 2-in. f/4.5 lens, price is $74.50; less lens, $59.50. Manufacturer is Sun Ray Photo Co., Inc., 295 Lafayette St., New York 12.

REVERE CINE ENLARGER is announced by Revere Camera Co., 320 E. 21st St., Chicago 16. The new unit now comes with both 8- and 16-mm film gates and produces 4x5 album prints from individual movie frames. Hand crank advances or rewinds; illumination is supplied by a 30-watt lamp; and any normal C or D mount lens may be used. Unit also doubles as viewer when editing film. Price of $37.50 also includes plastic trays, borderless easels, easel tape, blotter book, sponge, safelight, and instructions.



FR AUTOMATIC EXPOSURE TIMER with a synchronous motor for use with an enlarger or contact printer in all darkrooms. The preset dial is calibrated in seconds and can be used to time repeated exposures. Tripper button can be set so that enlarger or printer will remain on for indefinite periods for focusing, composing, and masking adjustments. Price is $14.95. Information from The FR Corp., 951 Brook Ave., New York 51.

BESELER 45 MCR, a new model enlarger announced by the Charles Beseler Company, East Orange, New Jersey, incorporates two new features. The first, the Bescolor Color Head, differs from the usual type in that the filters are inserted between the two condenser lenses, instead of between the light source and the negative. No heat-absorbing filter is needed and greater protection for the filters is claimed. The Bescolor Head is available as a replacement for present models used on the Beseler 45 M enlarger. The second

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7 x 50 DAY & NIGHT GENUINE PRISM TYPE

Most popular type, not limited only to good weather. Individual eye-piece focusing Archromatic coated optics. All metal construction.

BRAND NEW **21.95***

7x50 Central Focus	29.50*
16x50 Hi-Power, IF	31.95*
8x30 Famous Make, IF, Ctd	18.95*
20x50 Indiv. focus	54.50*

*Add 10% FET; cases 4.95; 1.25 post & ins

ALL ABOVE BRAND-NEW

1½ f1.9 LENS

FOR 8mm MOVIE CAMERAS

Precision focusing amount. Click stops coated optics give 3X magnification, twice the speed.

BRAND NEW **17.95**

Leather case for above 75¢ 65¢ post & ins

7mm f2.8 Wide Angle (8mm) . . 14.95

Buy the Special COMBO and S-A-V-E. Get Both above lenses, Brand-New 29.95

65¢ post & ins

Cases 75¢ ea.

ENLARGING PAPER

Size	Type	Surface	Grade	Quan.	Price
4x5	ENLARGING	SWGL	2	125	1.60
8x10	HALOID	SWGL	2	100	3.29
8x10	BROVIRA	SWGL	3	100	3.29
8x10	HALOBROME	DWSM	E E 3	100	3.89
11x14	ENLARGING	SWSM	1, 2, 3, 4	100	2.69
11x14	HALOBROME	SWGL	F4	50	2.79
11x14	HALOBROME	DWM	1, 2, 3, 4	50	3.60
11x14	KODABROMIDE	DWGL	F4	50	3.60
11x14	BROVIRA	DWGL	1	100	3.95
11x14	BROVIRA	DWGL	FF1	100	3.95
11x14	ENLARGING	DWSM	EE1	50	2.60
16x20	HALOBROME	SWGL	F2	50	6.25
16x20	HALOBROME	DWSM	EE1	50	7.25
20x24	ENLARGING	DWSM	1, 2	50	7.60
40x30 ft.	ENLARGING	DW Lstre	E4	roll	5.95
40x30 ft.	ENLARGING	DW Lstre	G5	roll	5.95

CONTACT PAPER

4x5	CONTACT	SWGL	F1, F3, F4	Gross	1.20
5x7	INDUSTRO	SWGL	F4	100	1.95
8x10	CONTACT	SWGL	F2, F3, F0	100	2.75
8x10	AZO	DW Lstr	E1, E2, E0	100	2.00
10x10	CONTACT	SWSM	1, 3	100	2.00
10x10	CONTACT AD Type	LWSM	3, 4, 5	250	2.60
10x20	CONTACT	SWSM	1, 2, 3, 4	100	3.20
20x24	CONTACT	SWSM	1, 2, 3, 4	50	6.25

SW GL Single Weight Glossy
SW SM Single Weight Semi-matte
DW SM Double Weight Semi-matte

Paper Price F.O.B., N. Y. Add Postage

35mm to 5 x 7 ELWOOD S-2

Reliable enlarger. Complete with 6½" f6.3 lens. Long bellows draw, tilt & revolve head.

BRAND NEW **69.50**

Shpg wt 85 lbs

K-20 AERIAL CAMERA

6⅜" f4.5 lens

Rapid-sequence action on 4 x 5 neg. Manual operation. Shutter speeds to 1/500. Guaranteed. Shpg wt 25 lbs

149.50

F8 Aerial Camera w/15" f5.6 Tele 179.50

U.S. AIR FORCE GLOSSY-MATTIE DRYER

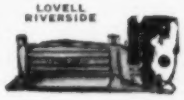
Complete with famous GE Calrod heaters, motor, 26" belt & wire basket. B-8 model matte only. Used reconditioned. **195.00** Value over $500

B-10, glossy & matte 295.00

Add 8.50 crtng chg. Shipped express

24" PRINT WRINGER

LOVELL RIVERSIDE



89.50

If price has kept you from fully equipping your lab, you'll welcome this electric driven wringer. 1/6 HP. AC motor. Adjustable tension frame. USED

Shpg wt 175 lbs

BELL & HOWELL EYEMO HEAVY DUTY TRIPOD

For all pro and semi-pro 16/35mm movie cameras—as well as the heavy duty still. Closed 36"—opens to 72". Single gear quick action clamps on legs . . . as well as spurs. Our price, like new, from surplus. **89.50**

Shpg wt 35 lbs

BELL & HOWELL 16mm SOUND PROJECTOR

2 CASE UNIT

All the famous FILMO-SOUND features — at a terrific price. Complete with 2" projection lens; and speaker. Used.

Shpd via express **189.50**

LENS SPECIAL 12" f4.5 GUNDLACH RADAR

For 8 x 10 Commercial and professional use. Finest lens for studio work. In Betax shutter, coated **117.50**

BRAND NEW

12" f4.5 GUNDLACH Radar ctd. in SYNCHRO SHUTTER 134.50

36" f6.3 Dallmeyer in barrel. Shipd via express **199.50**

5 x 7 ENLARGER EASTMAN KODAK AUTOFOCUS

Model D at a fraction of original price. Complete with 7½" f4.5 No. 34 Kodak lens. List over $600.00.

used **249.50**

Shpg wt 200 lbs

35mm ANSCO COLOR 20 exp day or tung min ord 5 for 4.45 45¢ post	**89¢**
35mm Aero Ektachrome 20 exp day or tung min ord 3 for 2.35 35¢ post	**80¢**
35mm ANSCO COLOR 50 ft. BULK use indoor or out. Day or tung. (specify); 45¢ post	**7.49**
35mm PLUS-X 100 ft save money. Each . . . . . 35¢ post	**1.50**
35mm INFRA-RED 100 ft of fascinatin film. 35¢ post	**2.20**
BULK FILM LOADER Load your-own cartridges. Value 6.95. NEW . . . . . 45¢ post	**4.95**
4 x 5 ANSCO COLOR Day or tung. 10 sheets . . . . . 20 for 3.39 35¢ post	**1.95**
2¼x3¼ FILMPACKS Plus-X 3 for 35¢ post 6 for 5.50	**2.95**
POST CARD SIZE ENLARGING PAPER DW SM #2&3 . . . 200 75¢ post	**3.50**
4 x 5 FILMPACKS SUP XX 3 for 35¢ post	**3.75**
9⅜x200 AERO ENLARGING 5mg Wt, 5 M #1 & 3 . . . . . 5/ea.	**3.95**
120 & 620 SUPER-XX or TRI-X 10 rolls 25¢ post	**2.49**
120/620 Aero Ektachrome Day, or tung. HI-SPEED ASA 32 min ord 3 for 1.98 25¢ post	**66¢**
120/620 INFRA-RED 10 rolls 25¢ post	**2.49**
16mm SUPER XX 100 ft . . . . . ea. 3 for 8.50 35¢ post FREE processing.	**3.00**
16mm KODACHROME 50 ft MAGAZINES 45¢ post 3 for FREE processing.	**13.50**
16mm SUPER XX 50 ft MAGAZINES 45¢ post 3 for FREE processing.	**6.95**
16mm PLUS-X Sing perf 100 ft 45¢ post 3 for FREE processing.	**9.90**
16mm ANSCO REVERSAL ASA 50 25 ft rolls 25 rolls only 55¢ post. Processing not included.	**4.98**
OUR POLICY Film & paper outdated surplus. Guaranteed. Min. ord. $3.00. Prices F.O.B. N. Y. C.O.D. w/ 25% deposit. Subj. prior sale.	

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SUPPLIER TO THE UNITED STATES GOVERNMENT

FILM WHOLESALERS!

ALL FILM ABSOLUTELY SAFE & RELIABLE

FRESH COLOR FILM

This 1957 dated film is in its original sealed package *fully guaranteed by the manufacturer*. Day. or Tung. Price includes processing & mounting (35mm). MINIMUM ORDER—3 ROLLS.

Size.	Kodachrome	McGregor Color (1957 DATE)	Dynacolor
8mm x 25' dble. roll	$2.90	$2.40	$2.30
8mm x 25' dble. mag.	3.60	3.50	3.50
16mm x 50' mag.	6.40	6.35	6.25
16mm x 100' roll	8.40	5.85	5.75
35mm x 20 exp.	2.60	1.85	1.79
35mm x 36 exp.	3.85	2.25	3 for 6.50
35mm x 12 exp.	....	6 for $5	....

FRESH MOVIE FILM

1957 dated, fast, fine grain, panchromatic ASA 50. Prices include new fast processing service.

8mm x 25' dble. roll $1.10
8mm x 100' Bolex dble. roll 3.50
16mm x 50' mag. 1.75
16mm x 100' roll Ansco 2.75
16mm x 100' 2.50
16mm x 100' Kodak Plus X 2.95
16mm x 50' roll, Plus X 1.65
8mm Mag. B & W 2.00
16mm x 50' mag. E.K. X or XX 2.25

BUY SIX ... GET ONE EXTRA FREE

KODAK 16mm MOVIE

Kodak Processing included

KODACHROME 16mm x 100' Day. or Tung. .. $5.95
KODACHROME 16mm x 50' mag., '55 Date .. 4.25
O.D. Kodachrome 16mm x 100' Day. or Tung. 2.95
Super X or XX 16mm x 50' magazine 2.75

HIGH SPEED MOVIE

ASA 200, '56 date, Proc. incl.

8mm x 25' Roll .... $2.45 ea.; 3 for $7.05
8 or 16mm x 100' roll ..... 5.70 ea.; 3 for 16.20

COLOR FILM MFR. PACKS UNDER AWON LABEL!!!!
Late 1957 Date. Price includes processing & mtg. All Kodachrome filters can be used with this film.
8mm x 25' dble. .... $1.98 ea.; 3 for $5.75
35mm x 20 exp. .... $1.79 ea.; 3 for $5.00
16mm x 50' roll .... $2.95 ea.; 3 for $8.25
8mm dble. or 16mm x 100' roll $5.25 ea.; 3 for $15

FREE! FREE!
With every order of $25 or more (except Kodachrome)—you get a FREE 1-year subscription — $4 value—to Modern Photography or U. S. Camera (specify).

ANSCOCOLOR
1956 Date - Day. or Tung.
35mm x 112' $18.95
35mm x 50' 9.95
35mm x 27½' ... 6.95
35mm x 20 exp. in metal cart. .ea. 1.20
35mm x 50' Tung. . 6.00
6 for $5.50; 12 for $10

FRESH AERO EKTACHROME ASA 50
35mm x 20 exp $1.55 ea.
4 for $5
Processing included
35mm x 40' bulk ... $5.35
35mm x 75' bulk ... $7.95
35mm x 75' plus 1½ gal. devel. kit $10.50

ANSCOCHROME
28 ft. x 35mm. Orig. Pack. Easy Load. $7.99

Ansco Color Printon
10 sheets per box
8 x 10" $5.00
11 x 14" ... $6.95

MOVIE—QUANTITY DISCOUNTS

B&W ASA 50. Reversal. No Processing

SIZE	54 Rolls	27 Rolls	15 Rolls
16mm x 50'	$19.95	$10.95	$ 5.95
*16mm x 100'	49.50	29.50	17.95

*Camera Spooled.

AERIAL FILM

Recent date! In original metal containers.

KODAK XX
5¼"x9' .... 4 for $1
5¼"x20' .... 2 for $1
5½"x56" $1.25
7"x125' 5.95
9½"x75' 7.95
9½"x200' 9.95

KODAK TRI-X
5¼"x20' ...... 2 for $1
5½"x56" $1.25
7"x18' .... $1 ea.
7½"x62' $2.98
9½"x75' 7.95
9½"x200' 9.95

AERO EKTACHROME ASA 40

with 1½ gallon processing kit
5¼ x 20' .... $6.95 5¼ x 40' $9.95
7 x 18' ..... $5.95 35mm x 37½' . $6.95
FREE Compensating Filter with any of above!

35mm Fresh Bulk Negative Safety
Kodak Plus X, Sup XX, Kodak Weston 24 Microfile, Ansco ASA 50 or DuPont #1 or #2
100' ...... $1.98 ea. 400' $7.50
FREE, 100' of ASA 24 w/every 100' order!

35mm x 20 Exp. Cart.
Plus X, Sup XX, Tri-X, Infra Red, Microfile
6 for $1.50 12 for $2.50

CUT FILM SPECIALS

3¼ x 4¼—original box of 25 sheets—
Du Pont Fine Grain Pan 3 boxes for $3.30
4 x 5—original box of 25 sheets—3 boxes for $3.50
Your choice of KODAK XX, Infra Red; DUPONT X-F Pan; ANSCO Tri-S Ortho.
8 x 10 original box of 25 sheets—$2.50 per box
Your choice of KODAK Super Pan Press Type B, Infra Red, Tri-X; DUPONT X-F Pan, Arrow Pan; ANSCO Super Pan Press, Process, Comm. Ortho.
Ansco Color Day. or Tung. (10 shts. per box)
4 x 5 ..... $2.50 ea.; 6 for $10
8 x 10 .... $3.95 ea.; 3 for $11

CONTACT PAPER SALE

In original mfrs. box!
7½ x 7½ SWGL—box of 250 sheets $2.75
10 x 10" SWSM—1 box (100 sheets) .... 98¢
20 x 24" SWSM (50 shts.) $1.95
8 x 11½" Reflex Copy (100 shts.) $1.50

Polaroid Film, Type 31 .... 6 for $5

20% Deposit on all C.O.D. please. U. S. Excess Please include postage with all orders.
25% Discount on all Photographic Material

AWON FILMS

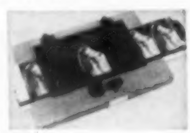
Send 25¢ for complete 52 page catalog listing all photo equipment at unbeatable prices.

108-P W. 29th St., New York 1, N. Y.

feature is the Resistrol variable resistance unit, mounted above the motor housing, enabling the user to vary the light intensity electrically instead of stopping down the lens. This unit is also available separately and may be used on any enlarger. The price of the 45 MCR is $229.75 ($239.75 west of Denver).

REELOADER is a darkroom accessory for loading developing tank reels. Two arms grip the reel at the center and after the film end it attached the reel is turned. Two upright guides are claimed to insure smooth entry of film onto reel. DeFay's Photo Prods., 2123 E. 97th Pl., Chicago, announces the price at $2.

AGI-TRAYS developing trays come in a set of three colors for easier identification in darkroom. Featured are three-point suspension for easier agitation and levelness. Size is 11x14; price, $9.95; and manufacturer is Yankee Photo Prods., 3325 Union Pacific Ave., Los Angeles 23.



REPEAT EASEL is a strip printer which when used with an enlarger produces strips of six photographs on a 3½x15-in. strip of projection paper. Size of prints range from 2x2 to 2½x3½ in.; positive spacing is automatic; and unit comes with interchangeable masks and sizes. Paper may be cut from large sheets or ordered cut to size. Made by Repeat Easel Prods., Inc., 1585 Flatbush Ave., Brooklyn 10, N. Y., the price is $57.50.

YANKEE UTILITY TANK for home developing of 4 x 5 or smaller films features a snap-on cover which is air-tight and leak-proof. A notched rim evenly spaces 12 hangers. Over-all size is 6 x 7 x 6 in. and it holds ½ gal of solution. Tank may be used for color films as well as black-and-white. Price is $2.95 and literature is available from Yankee Photo Products, 3325 Union Pacific Ave., Los Angeles 23.

KREONITE SINKS, designed for darkroom use are made in one piece of Fiberglas reinforced plastic. Claimed features are light weight, high mechanical strength, resistant to chemical action, and rubber-like resiliency. Deep ribs formed into the bottom provide drainage. A five-in. back ledge forms a shelf and has mounting space for faucets and spray hose and conceals plumbing. Available in 72-, 84-, or 102-in. sizes, prices start at $185. Accessories available include built-in temperature controls and wood or metal cabinet bases or stands. More information available from Kay Dee Products, 230 N. Dellrose, Wichita 8, Kansas.

FILM

PACKAGING CHANGES are announced by Du Pont's Photo Products Department, Wilmington, Del., for 100-ft and 200-ft daylight-loading 16-mm films. A new-type encircling band prevents unwinding of film from spool and is said to be easier to remove than the rubber band formerly used. Another improvement is a new cloth tape to seal the film container. The new tape is said to be easier to remove in cold weather.

PANATOMIC-X film, with new properties, has been brought back by Eastman Kodak Co., Rochester, N. Y. The new film is claimed to have an extremely fine grain; better definition for enlarging purposes; greater exposure latitude, and rapid processing. Smaller and more uniformly dispersed silver grains are claimed to retain highlight density. Speed is rated at ASA 25 (daylight) and 20 (tungsten). Developing time in D-76 is seven minutes. Film sizes and prices are 828, 127, 120, and 620 (55 cents); 135 magazines, 20 exp. (90 cents) and 36 exp. ($1.15)

PLUS-X film is also announced by Eastman Kodak as having been upped in speed, to ASA 80 for daylight and 64 for tungsten. Finer grain is also claimed. Prices of 35-mm cartridges (only size available) are 85 cents for 20 exp. and $1.10 for 36 exp.

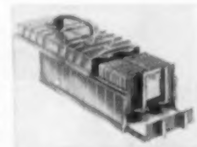
PROCESSING SERVICES

SPIRATONE INC., Special Color Lab., 49 W. 27th St., New York 1, announces processing of Ansco and Kodak color films as well as foreign films such as Dufaycolor and Gevacolor. Also offered are stepped-up processing for Ektachrome and Anscochrome films, up to ASA 128; stereo mounting service for Anscochrome films; color prints and duplicate transparencies. Normal processing of 20-exp. 35-mm cartridges is priced at 75 cents, $1 incl. mounting. Write for price list.

PROCESSING STATIONS for stereo films have been established by Realist, Inc., at 315 W. Court St., Milwaukee, Wis.; 946 Cahuenga Blvd., Hollywood, Calif.; Box 1030 Grand Central Sta., New York; and 947 Sycamore St., Buffalo, N. Y. Realist service has been extended to the processing of exposed film, and mounting is done by hand. For a description of the two types of service available, write any of the above stations.

MISCELLANEOUS

INSTRUCTION LEAF ON POLARIZING-FILTER USE is available from Enteco Industries, Inc., 610 Kosciusko St., Brooklyn 21, N. Y. Reflection elimination, creation of dark-sky effects, photographing through water, etc., are described.



ADD-A-TRAY slide files feature interchangeable drawers holding 200 standard or 100 stereo slide transparencies in cardboard mounts or 100 and 50, respectively in glass. Additional drawers can be slid on top and are self locking, to build a portable file. Basic unit consists of a cover, a divider-drawer, and index tray with index cards. Price is $3.50; a three-drawer unit, $7.50; and additional drawers are $2.10 each. Literature is available from Portable Slide Mfg. Corp., 361-2 Hendrix St., Brooklyn 7, N. Y.

POCKET MAGNIFIER for negative inspection and critical reflex focusing provides 10x magnification. Distributed by The Handtool Co., 309 Fifth Ave., New York 16, price is $3.95, including a leather case.

EASTERN CAMERA EXCHANGE, announces the opening of a branch store at 58 W. Main St., Bay Shore, L. I., N. Y., featuring on-the-premises repair and four hr developing and printing service.

BEG YOUR PARDON!

Listings of the Hershey Manufacturing Company's Sun-Lite units were inadvertently omitted from the table of portable speedlights that appeared in last month's Popular Photography.

There are three models of the Sun-Lite II, all with 50 watt-seconds input and output to give guide numbers of 40-50 with Daylight Kodachrome. Their light is rated at 6400° K. Models 225 and 240 are primarily dry battery units, but can be adapted for ac use. They recycle in 5 seconds. Model 225 weighs 7 lb. 6 oz. with batteries and costs $79.50. Its batteries have a year's shelf life, provide 1000 flashes in service, and cost $8.70. Model 240 weighs 4 lb. 6 oz. with batteries and costs $89.50. Its batteries provide a year's shelf life or 500 flashes and cost $8.35 to replace. Model 110 is built for ac use but can be used with the Sun-Lite II power pack for portability. It weighs 4 lb. 14 oz. and recycles in 5 seconds. Extension lights are available for all Sun-Lite units. Unlike most, they contain condensers that store up additional current so that the total light is increased instead of divided when they are employed.

Budget outfits of the Sun-Lite line are Model 500 and the Flash Saver. Both use 28 watt-seconds input and have 25-30 guide numbers with Daylight Kodachrome film. They are self-contained camera units without separate power packs that recycle in 4 seconds. Model 500 weighs 2 lb. 4 oz. with its dry batteries, which have a year's shelf life or provide 1,000 flashes of 1/700 second duration in use and sell for $7.95. The unit costs $49.50 without battery. The Flash Saver is built for ac, weighs 2 lb., recycles in 4 seconds and costs $39.95. Accessories available include special brackets and trippers and an adjustable F-M synchronizing adapter.

COLOR DEVELOPING
For the Perfectionist
24 HOUR DELIVERY

35mm Developing & Mounting

	1 Roll	2 Rolls	3 Rolls
Anscochrome Ansco Ektachrome	1.00	1.90	2.75

36 Exp. Ansco or Ektachrome 2.00

120-620 Ansco or Ektachrome	1 Roll	2 Rolls	3 Rolls
	1.00	1.75	2.50

35mm COLOR
SLIDE DUPLICATING

MOUNTED	UNMOUNTED
17¢ ea.	15¢ ea.
6 for 1.00	7 for 90¢
20 for 3.00	20 for 2.50

KODAK 1957 EKTACHROME RELOADS
35mm Daylight or Indoor
3 Times as Fast as Kodachrome (ASA32)
(Do Not Confuse with Aero Ektachrome)

Prices Incl. Developing & Mounting

20 Exp.	36 Exp.
1 Roll.....2.50	1 Roll.....3.95
3 Rolls.....6.95	3 Rolls.....10.49

35mm Ektachrome Bulk Film
1 Yr. Expiration
28 Ft., Price Incl. Dev. & Mtg. $16.95
No Dev. 28 Ft. $11.25—100 Ft. $38.00

SUPER-FAST
ANSCOCHROME ASA 32

20 Exp.	35mm	36 Exp.
1 Roll	$2.50	1 Roll $3.75
3 Rolls	6.65	3 Rolls 9.99

828: 1 Roll $1.75—3 Rolls $4.75
ALL PRICES INCLUDE DEVELOPING AND MOUNTING.
ALL DATED FILM 1 YR. EXPIRATION

THIS WALLET SIZE
COLOR PRINT
from 35mm only 17½¢ minimum order 8 for 1.40

3¼x4 SPARKLING COLOR PRINTS 5 x 7

3x 43¢ ea. Any 6—2.35
2½ X (2½ x 3¼) 22¢ ea. 9 for $1.89
5x 85¢ ea. Any 3—2.40
4 x 5
4x 50¢ ea. Any 4—1.85
8 x 10
8x 1.89 ea. Any 3—5.35

BULK 35mm ANSCOCHROME
Daylight Film Loader plus 28 ft. Anscochrome tongued and frame numbered. 8 FREE Cartridges & 8 Mailing Bags. Deluxe Developing and Mounting for 8 Rolls when sent in. All for $14.99

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CAMERAS, STILL

6. (a) Brochure: How to take pix of TV programs. (b) Brochure: Information on copy and close-up. ARGUS CAMERAS, INC.

8. (a) Book: Complete reference book for amateur and beginner, "The Bolsey Guide," 128 pp., 70 illus., charts, tables, $1.95. (b) Circular: Bolsey Precision Cameras, features new Jubilee Threesome, prices. BOLSEY CORPORATION OF AMERICA.

9. (a) Booklet: "Rollei," 12 pp., illus., description and details, Rolleiflex, Rolleicord. (b) Booklet: The Practical Accessories for Rollei Cameras, 24 pp., illus. BURLEIGH BROOKS.

11. (a) Brochure: "Bino-Fotography." (b) Booklet: "How to Select Binoculars." D.P. BUSHNELL COMPANY.

18. (a) Brochure: List and prices of 400 items for Exakta cameras. (c) Brochure: Automatic Pentacon Praktiflex FX. Describes both the Automatic Pentacon and the Automatic Praktiflex, gives full information, illus., EXAKTA CAMERA COMPANY.

23. (a) Booklet: For Prize Winning Pictures—Graflex, Specifications, etc. 32 pp., illus. GRAFLEX.

26. (a) Booklet: The Royal Robot; (b) Booklet: Robot Underwater Camera; (c) Booklet: Robot Accessories. INTERCONTINENTAL MARKETING.

31. (a) Booklet: Holiday Photography, 25¢. KONICA CAMERA COMPANY.

34. (a) Booklet: Minolta "A"; Minolta 35, Model II and Rokkor lenses. (b) Booklet: Minolta Autocord and Minoltacord. MINOLTA CAMERA COMPANY.

38. (a) Catalog: Discusses each Polaroid Land Camera, accessories, gives hints and ideas for using 60-second pictures, illus. POLAROID CORPORATION.

39. (a) Brochure: Information on book titled "35mm Photography With A Praktiflex." PRAKTICON COMPANY.

45. (a) Booklet: Omega 120; data, description. SIMMON BROTHERS.

52. (a) Booklet: "The Voigtlander Line"; complete details, description, illus. (b) Booklet: Complete detailed information of Hasselblad Camera, accessories, 26 pp. illus. (c) Hasselblad Super Wide Camera, details, description of camera, accessories; 32 pp., illus. (d) Folder: "Hasselblad 1000F", illus., descriptive pamphlet of Hasselblad and accessories. (e) Folder: Illustrated and descriptive folder on Hasselblad Super Wide. WILLOUGHBY'S WHOLESALE.

53. (a) Brochure: "Edixa"; describes 35mm Edixa cameras, accessories, lists prices. WIRGIN BROS.

CAMERAS, MOTION PICTURE

7. (a) Brochure: The Auricon Cine-Voice; 16mm camera for professionals. (b) Brochure: Same as above, except for home movie makers. (c) Booklet: How to use your Cine-Voice, 16mm sound-on-film Recording Camera. (d) Catalog: 40 pp., illus., Auricon Cameras. BERNDT-BACH, INC.

12. (a) Brochure: "The Eumig 88"; description, details, lists accessories for this 8mm movie camera. CAMERA SPECIALTY.

30. (a) Booklet: 8mm full line covering all 8mm movie cameras and projectors. (b) Circular: 16mm full line covering all 16mm movie cameras and projectors. (c) Circular: Christmas mailing folder describing the new Christmas packages available. (d) Book: Keystone Movie Scene Record Book; 15¢. KEYSTONE CAMERA COMPANY.

43. (a) Booklet: Cameras by Revere. REVERE CAMERA COMPANY.

MOTION PICTURE ACCESSORIES

29. (a) Booklet: "Home Movies the New Craig Table Top Way," 20 pp., illus., including tips on tricks, etc., movie editing. (d) Booklet: "Editing for Better Movies" by Leo Heffernan, 50¢. KALART COMPANY, INC.

37. (a) Booklet: "How To Take Better Sports Films," 24 pp., illus. (b) Magazine: "The Bolex Reporter," quarterly, available thru franchised Bolex dealers. PAILLARD PRODUCTS, INC.

42. (a) Brochure: RCA 400 Junior and Senior 16mm Sound Projectors; non-technical description of operating features. Illustrates sound equipment which may be combined with projectors in semi-permanent or permanent installations, 12 pp., illus. RADIO CORPORATION OF AMERICA.

43. (b) Booklet: Features and operation Curvamatic Splicer. (c) Booklet: Curvamatic Splicer, details, data. (g) Booklet: Motion Picture Equipment. REVERE CAMERA COMPANY.

49. (a) Booklet: "How To Shoot Home Movies" by Johann Van Zandt, detailed information on use of Vistascope for home movies; 8 pp., illus. (b) Folder: Descriptive pamphlet on Vistascope. VISTASCOPE.

LENSES

9. (c) Booklets: 1. Schneider Lenses, 10 pp., illus.; 2. Schneider Additional Lenses; 3. Xenotar; 4. Angulon; 5. Tele-Xenar; 6. Xenon; 7. Symmar; 8. Cine-Lenses from 6.5 to 105mm; 9. Componon, Componar; 10. Xenor, general purpose lens; all well illustrated. BURLEIGH BROOKS.

11. (c) Pamphlet: "Those Startling Fujinons"; discusses the new 50mm F1.2 and 35mm F2 lenses. D.P. BUSHNELL COMPANY.

16. (a) Leaflet: "How To Use Enteco Polarizing Screens and Enteco Polarizing Filters with Still and Movie Cameras." (b) Leaflet: New Enteco data and information charts on close-up photography with supplementary lenses. (c) Leaflet: Revised edition of Enteco "Filter Information," handy filter factor and film speed chart, filter types. ENTECO INDUSTRIES.

17. (a) Booklet: "Take A Tip From Hollywood," describes Elgeet lenses, instructions on home movies, etc., 36 pp., illus., 10¢. ELGEET OPTICAL COMPANY.

18. (b) Brochure: Steinheil lenses, wide angle, telephoto and movie lenses. (c) Brochure: Angenieux Lenses, complete information on construction, angles of view, relative magnification, range, focal length. (d) Catalog: "Equipment Information from Exakta," lists latest lenses recommended for the Exakta Camera, 28 pp., illus. 10¢. EXAKTA CAMERA COMPANY.

28. (b) Folder: How to Use Your Elitar Soligor Lens, descriptive information on Telephoto, Wide Angle, prices. INTERSTATE PHOTO SUPPLY.

31. (b) Chart: Shows test of Hexanon 50mm F/2.8 lens as used in the Konica II. KONICA CAMERA COMPANY.

52. (f) Booklet: "Zeiss Lenses For The Hasselblad Camera," detailed information and discussion of Zeiss lenses for the Hasselblad; 10pp, illus. WILLOUGHBY'S WHOLESALE.

54. (a) Booklet: Raptar 8mm cine lenses. (b) Booklet: Raptar 16mm cine; (c) Booklet: "How to Have More Fun With Your Camera." WOLLENSAK.

PROJECTORS, SLIDE

5. (a) Booklet: How To Select A Slide Projector. AMERICAN OPTICAL.

6. (c) Brochure: "Curtain Time," hints to help with color slide shows. ARGUS CAMERAS, INC.

21. (c) Folder: Describes Skan automatic "slide-cooling" projector, illus. G-M LABORATORIES, INC.

44. (a) Brochure: A complete listing of all regular View-Master Reels and Packets, including product prices. (b) Brochure: Stereo Today, a complete coverage of the View-Master Stereo System, information on products in this system. SAWYER'S, INC.

61. (a) Booklet: "How to Show Your Slides Without Losing Your Friends"; shows step by step procedure for building a slide program instead of a series of individual pictures. LA BELLE INDUSTRIES.

FLASH EQUIPMENT

1. (a) Booklet: Various styles of lighting equipment for still pictures, indoor movies and 3-D shots. (b) Folder: Describes use of multiple floodlamp control box, gives electrical facts affecting use of flood and flash lamps; 6pp. ACME-LITE MFG. CO.

4. (a) Booklet: "How To Take Professional Flash Pictures With Your My-T-Myte Flashbulbs," 8pp., illus. AMPLEX.

6. (d) Booklet: "Flash"; data on flash for Argus cameras, 8pp., illus. ARGUS CAMERAS, INC.

13. (a) Booklet: "Light Makes the Picture, Synctron Takes It Better." (b) Booklet: Current technical data on Synctron models. (c) Catalog: Includes accessories, technical information, prices, individual specification sheet for each model. (d) Folder: "55 Quick Facts on Dry Battery and Dynaseal Power." DORMITZER ELECTRIC COMPANY.

22. (a) Folder: "Triangle Lighting" formula for taking indoor pix with light. (b) Booklet: Photoflash Tips. (c) Bright Ideas-flash pix of parties, kids, adults. (d) Photolamp Data—lighting, exposure, film speed for flash, flood, other lamps. (g) Booklet: The M-2 Bulbs; data information on the "tiny" bulbs. GENERAL ELECTRIC.

23. (b) Folder: Graflite. (c) Folder: Stroboflash. GRAFLEX.

24. (a) Booklet: "Strobonar Units," 16pp., illus. (b) Booklet: "Synchro-Mite," 8pp, illus., flash units. (c) Booklet: Professional Flash Synchronizers; including solenoids, reflectors, battery cases; 16pp, illus. (d) Booklet: "Synchro Units"; 8pp., illus. (e) Folders: 1. Fotoeye; 2. Koiled Kord; 3. Strobonar Six; 4. Strobonar Seven. HEILAND.

34. (c) Booklet: Minolta Jr. B-C Flash Gun. MINOLTA CAMERA CO.

25. (a) Folder: Sun-Lite II; description and illus. on speedflash. (b) Folder: Sun-Lite 500, description and information, 6pp, illus. (c) Folder: Flash Saver, description, 4pp. (d) Manual: Sun-Lite II instruction booklet, detailed information on Sun-Lite II Portable Speed Flash, all 3 models; 20pp, illus; 25¢. HERSHEY MFG. COMPANY.

28. (a) Folder: Describes 3 models of electronic flash, Expert IV, Matador, Reporter I, prices. INTERSTATE PHOTO SUPPLY.

35. (a) Booklet: Eveready Battery Engineering Bulletin on flash photography, 12pp. illus.; issued periodically. (b) Eveready Batteries, data, helpful information "B," "B-C" batteries. NATIONAL CARBON COMPANY.

36. (a) Leaflets: Technical information and data on use of the Megalume electronic flash. (b) Pamphlet: "Reciprocity Failure and the Determination of Exposure With Some Electronic Flash Equipment." NEMS-CLARKE, INC.

46. (a) Brochure: Listing of lighting equipment for semi-professional or advanced amateur. (b) Brochure: Complete listing of lighting equipment for the amateur and movie maker. (c) Booklet: "Indoor Photos Made Easy," how to do indoor lighting, 16pp, illus. SMITH-VICTOR CORPORATION.

47. (a) Folder: "Flash is Easy—Flash is Fun"; complete flash instruction for advanced, amateur, beginner. (b) Booklet: How to Take Better Pictures and Have More Fun With Flash; 32pp. illus. (c) Booklet: Color Flash with Box Cameras. (d) Booklet: How to Throw a Snapshot Party; 24pp, illus. (e) Card: Wallet Size, gives correct F-stops. (f) Brochure: Basic Lighting Placement, illus. (g) Specification Sheets: 1. Blue Dot Line; 2. Projection Lamps; 3. Darkroom and Enlarger Lamps; 4. Super-floods. SYLVANIA ELECTRIC.

8. (c) Exposure Guide: Pocket size, gives correct F-stops. BOLSEY CORPORATION OF AMERICA.

50. (a) Calculator: Vest-pocket size; b&w and color settings at varying distances, speeds, f-stops. 10c. (b) Brochure: The ABC of Flash Photography; guide to how, when, why to use flash bulbs. (c) Brochure: Your guide to better pictures thru better lighting; comprehensive discussion of Westinghouse bulbs. (d) Booklet: Betty Furness Says, illus.; on projection lamps for home movies. WESTINGHOUSE.

55. (a) Booklet: Descriptive data and information on Limelite "60"; 14pp., illus. (b) Folder: Describes Limelite Electronic Flash; 4pp, illus. LIMELITE CORPORATION.

57. (a) Brochure: 6pp., Mallory B-C Cartridges photo flash item; complete cross-reference unit to flash attachment; 50 units; Mallory B-C Mercury Cartridges. (b) Leaflet: Complete explanation of application of Mercury for foto-flash. P.R. MALLORY & CO.

62. (a) Booklet: Electronic Flash. (b) Booklet: Brighter Way to Better Pictures, 16pp. FR CORP.

PROCESSING EQUIPMENT AND MATERIALS

9. (d) Leaflets: 1. Nikor Developing Tanks; 2. Nikor Film Processing Machine. (e) Brochure: Veigel Enlargers; description, data Exact 35, Amatex 35, Exakt 66. BURLEIGH BROOKS.

10. (a) Brochure: Illustrating design and function of Model 45M Enlarger, 24pp. (b) Leaflet: Additional uses of Model 45M Enlarger. (c) Pamphlet: Discusses characteristics and operation of Model 57MB. (d) Book: A Brief 73 Year History of Enlarger Design, 32pp. CHARLES BESELER COMPANY.

19. (a) Booklet: "How to Buy an Enlarger." FEDERAL MANUFACTURING AND ENGINEERING CORP.

27. (a) Leaflet: Time-O-Lite Printer. (b) Leaflet: Time-O-Lite Meters and Switches. INDUSTRIAL TIMER.

33. (a) Booklet: "Marshall's Guide for Hand-Coloring Photographs," special section on heavy oils, 36pp, illus. 25¢. (b) Pamphlet: Color Chart; Marshall's photo-oil colors, price list of sets, accessories 10¢. (c) Pamphlet: Make Life More Colorful, discusses photo-coloring; (d) Pamphlet: Information on the photo-oil pencil. JOHN G. MARSHALL MANUFACTURING CO.

45. (b) Catalogs: Omega A-2, B-7, B-8, D-2, D-3, E-5; (One on each model, specify which you want.) SIMMON BROTHERS.

56. (a) Folder: Describes "Static Master," gives uses and prices, 3pp, illus. NUCLEAR PRODUCTS.

58. (a) Brochure: Discusses Lisco Cut Film Holder; gives data and information on exclusive features. LISCO PRODUCTS.

60. (a) Booklet: Clayton P-60 Fine Grain Developer; detailed instruction on use; 16pp, illus. CLAYTON CHEMICAL CORP.

62. (c) Booklet: Cut Film Pack Developing Tank. (d) Booklet: Developing Tank. (e) Booklet: Proven Liquid Chemicals. (f) Booklet: You'll Enjoy Developing and Printing. (g) Booklet: Big Picture Fun for Everyone (Enlarger). (h) Booklet: Home Developing and Printing Kit. (i) Booklet: Developing and Enlarging; FR CORPORATION.

EXPOSURE METERS

20. (a) Booklet: Catalog sheet and booklet describes original direct-reading, photo-electric exposure meter, reading directly in f-stops, with film speed charts. (b) Brochure: "Ideal Rangefinder," instructions for calibrating rangefinders. (c) Brochure: Catalog sheets, golf club selector guide, information on Long-Range Rangefinder and its uses. FEDERAL INSTRUMENT CORP.

21. (a) Circular: Describes the Skan Quick Meter, price, information. (b) Booklet: Technical data, information on use and care of Skan Meters, helpful hints, 24pp, illus. G-M LABORATORIES, INC.

22. (e) Leaflet: GE Exposure Meters, significant features which adopt one of three GE meters to specific requirements. (f) Booklet: Color Control Meter and Variable Color Filter; how to achieve full control of color. GENERAL ELECTRIC.

51. (a) Circular: Describes Model 735, the Weston Master II Exposure Meter and the Direct Reading Exposure Meter, Model 853. (b) Pamphlet: "Using Weston Exposure Meters With Polaroid Land Cameras." WESTON ELECTRICAL INSTRUMENT CORP.

PICTURE TAKING ACCESSORIES

40. (a) Booklet: "New Super Quick-Set Universal Photographic Support," illustrates and describes new system for handling cameras and related accessories, 12pp. (b) Folder: "Whitehall Tripods." 6pp. illus. QUICK-SET, INC.

59. (a) Catalog: 12pp., illus—describes all types of camera bags and leather goods of use to the photographer, lists prices. J. B. PERRIN CO.

FILM, PAPER

3. (a) Booklet: Ilford Flat Films, 12pp, illus: information and technical data. (b) Brochure: Ilford Roll Films, data and description; 6pp. (c) Circular: Ilford Microphen Developer, how to use it, and what it does. ALCO PHOTO SUPPLY.

14. (a) Book: "DuPont Photographic Films"; gives detailed information on photographic films, papers, chemicals; fundamental elements of photography, 85pp. bibliography, well illustrated, 35¢. (b) Book: "DuPont Photographic Papers"; designed to assist in print making. Information on selection of proper paper and correct use; surface designation chart, formula section; 57pp, illus. 35¢. DUPONT & COMPANY.

43. (d) Booklet: Features and instructions on uses of Diaversal Enlarging Paper. REVERE CAMERA CO.

62. (j) Booklet: Special Adjustable Roll Film; FR CORPORATION.

VIEWERS

2. (a) Booklet: Describes in detail features of Admiral Slide-Light Viewer; 8pp. ADMIRAL PHOTO PRODUCTS.

62. (k) Booklet: Your Port-A-View; FR CORPORATION.

SLIDES, STEREO

43. (e) Booklet: Features of Shield 'N Vue Slide Projectors. REVERE CAMERA CO.

TAPE RECORDERS

43. (f) Booklet: Features of hi-fi "Balanced Tone" Tape Recorders. REVERE CAMERA COMPANY.

19. (b) Circular: Model 37C; Model 47A; description, data. FEDERAL MANUFACTURING & ENGINEERING CORP.

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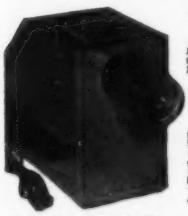

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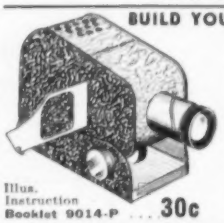

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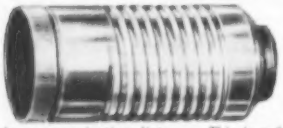

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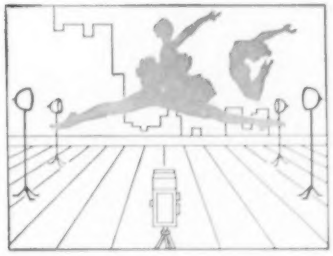

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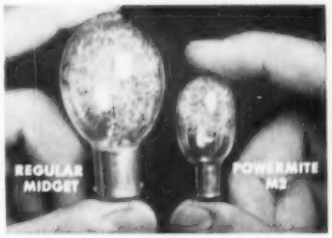

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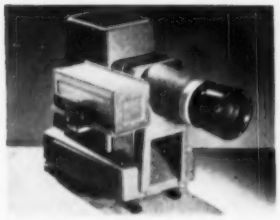

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